

**STEVEN EUGENE GUFFEY, PhD, CIH**  
Professor

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## **Professional Background**

### **Certification**

Diplomate, American Academy of Industrial Hygiene (Comprehensive Practice)

### **Education (indicate professional engineering registration, if applicable).**

1984–1987 University of North Carolina, **Ph.D.**, Industrial Hygiene Engineering  
1971–1973 North Carolina State University, **M.I.E.**, Human Factors Engineering  
1967–1971 North Carolina State University, **B.S.**, Engineering Mechanics  
Diplomate, American Academy of Industrial Hygiene (Comprehensive Practice)

### **Employment History**

2007–present **Professor and Program Coordinator**, Industrial Hygiene program, Industrial and Management Systems Engineering (IMSE), College of Engineering and Mineral Resources, West Virginia University, Morgantown, WV.  
2000–2007 **Associate Professor and Program Coordinator**, Industrial Hygiene program, Industrial and Management Systems Engineering (IMSE), College of Engineering and Mineral Resources, West Virginia University, Morgantown, WV.  
1994–2000 **Associate Professor**, Industrial Hygiene and Safety, Department of Environmental Health, School of Public Health and Community Medicine, University of Washington, Seattle, WA.  
1987–1994 **Assistant Professor**, Industrial Hygiene and Safety, Department of Environmental Health, School of Public Health and Community Medicine, University of Washington, Seattle, WA.  
1979–1983 **Head**, New Directions Program at the University of North Carolina Occupational Safety and Health Educational Resource Center, Chapel Hill, NC. Provided multi-level training for industrial supervisors, workers, and occupational health and safety

professionals. Coordinated and supervised the activities of outside consultants.

- 1976–1979 **Consultant** to industry for the North Carolina Department of Human Resources, Occupational Health Branch, Winston-Salem, NC. Sampled exposures and designed engineering controls for nearly 300 industrial companies.
- 1973–1976 **Industrial Hygiene Field Investigator** for the North Carolina Occupational Safety and Health Administration, Raleigh, NC. Completed OSHA industrial hygiene inspections at over 220 industrial companies.

## Honors and Awards

- 2004-2005 CEMR Advising Award
- 2003-present Tau Beta Pi - Engineering Honorary Society
- 1999 "Best Paper," Presented by the Engineering Committee of the American Industrial Hygiene Association,
- 1994 "Best Paper," Presented by the Engineering Committee of the American Industrial Hygiene Association
- 1993 "Best Paper," Presented by the Engineering Committee of the American Industrial Hygiene Association
- 1986-1987 American Industrial Hygiene Association Fellow
- 1984–1986 DuPont Fellow
- 1967 National Merit Finalist

## BIBLIOGRAPHY

### Peer-Reviewed Papers

1. **Guffey SE**. An Easier Calculation System for Ventilation Design. Am. Ind. Hyg. Assoc. J., 44(9):627-630 (1983).
2. **Guffey SE** and Hickey JLS. Equations for Redesign of Existing Ventilation Systems. Am. Ind. Hyg. Assoc. J., 44(11):819-827 (1983).
3. **Guffey SE** and Fraser DA. A Power Balance Model for Converging and Diverging Flow Junctions. ASHRAE Transactions, 95(2):3-9 (1989).
4. **Guffey SE** and Fraser DA. Kinetic Power Model of Junctions Losses. ASHRAE Transactions, 95(2):10-22 (1989).

5. **Guffey SE.** Simplifying Pitot Traverses. Applied Occup. Environ. Hyg., 5(2): 95-100 (1990).
6. **Guffey SE.** Airflow Distribution in Exhaust Ventilation Systems. Am. Ind. Hyg. Assoc. J., 52(3):93-106 (1991).
7. **Guffey SE.** A Computerized Data Acquisition and Reduction System for Velocity Traverses in a Ventilation Laboratory. ASHRAE Transactions, 98(1):98-106 (1992).
8. **Guffey SE.** A Proposed Model for Converging Flow Junction Pressure Calculations. Am. Ind. Hyg. Assoc. J., 53(9):556-565 (1992).
9. **Guffey SE.** Friction Tables Determined from Colebrook's Equation for Standard Density Air Flow. Applied Occup. Environ. Hyg., 7(7):453-466 (1992).
10. McLoone HE,\* **Guffey SE** and Curran JC. Effects of Shape, Size, and Air Velocity on Entry Loss Factors of Suction Hoods. Am. Ind. Hyg. Assoc. J., 54(3):87-94 (1993).
11. **Guffey SE** and Curran JC.\* Use of Power Balance to Model Pressures in Bilateral Junctions for Converging Flow Ventilation Systems. Am. Ind. Hyg. Assoc. J., 54(3):102-112 (1993). \*Precepted student
12. **Guffey SE.** Modeling Existing Ventilation Systems Using Measured Values. Am. Ind. Hyg. Assoc. J., 54(6):293-306 (1993).
13. **Guffey SE.** Airflow Redistribution in Exhaust Ventilation Systems Using Dampers and Static Pressure Ratios. Applied Occup. Environ. Hyg., 8(3):168-177 (1993).
14. **Guffey SE** and Barnea N.\* Effects of Face Velocity, Flanges, and Mannequin Position on the Effectiveness of a Benchtop Enclosing Hood in the Absence of Cross-Drafts. Am. Ind. Hyg. Assoc. J., 55(2):132-139 (1994). \*Precepted student
15. **Guffey SE.** Quantitative Troubleshooting of Industrial Exhaust Ventilation Systems. Applied Occup. Environ. Hyg., 9(4):267-280 (1994).
16. **Guffey SE** and Booth DW\*. Comparison of Pitot Traverses Taken at Varying Distances Downstream of Obstructions. Am. Ind. Hyg. Assoc. J.: Vol. 60, No. 2, pp. 165-174 (1999) \*Precepted doctoral student
17. **Guffey SE** and Spann JG\*. Experimental Investigation of Power Loss Coefficients and Static Pressure Ratios in an Industrial Exhaust Ventilation System. Am. Ind. Hyg. Assoc. J. 60(3): 367-376 (1999). \*Precepted student
18. **Guffey SE**, Booth DW\*, Hibbard R and Stebbins A. Hard Metal Exposures, Part 1: Observed Performance of Local Exhaust Ventilation Systems. Applied Occup. Environ. Hyg. 15(4): 331-341 (2000). \*Precepted doctoral student
19. Simcox, N, **Guffey SE**, Stebbins A, Booth DW\*, Hibbard R and Camp. Hard Metal Exposures, Part II: Prospective Exposure Assessment. Applied Occup. Environ. Hyg. 15(4): 342-353 (2000). \*Precepted doctoral student
21. **Guffey SE**, Flanagan ME\* and van Belle G. Air Sampling at the Chest and Ear As Representative of the Breathing Zone. Am. Ind. Hyg. Assoc. J.: Vol. 62, No. 4, pp. 416-427 (2001). \*Precepted MS student [ R 49 ]

22. **Guffey SE** and Booth DW\*. An Evaluation of Industrial Ventilation Troubleshooting Methods in Experimental Systems. Am. Ind. Hyg. Assoc. J., Vol. 62, No. 6, pp. 671–679 (2001). \*Precepted doctoral student [ R 48 ]
23. Booth DW\* and **Guffey SE**. An Evaluation of Industrial Ventilation Branch Screening Methods for Obstructions in Working Exhaust Systems. Am. Ind. Hyg. Assoc. J. (Vol. 62, No. 4, pp. 401–410) (2001). \*Precepted doctoral student [ R 47 ]
24. G.A. Croteau\* and **Guffey, S.E.**, Flanagan, M.E., and Seixas, N.S. The Effect of Local Exhaust Ventilation Controls on Dust Exposures During Masonry Activities. Am. Ind. Hyg. Assoc. J. AIHA Journal 63:458–467 (2002). \*Precepted student [ R 5 ]
25. Booth DW\* and **Guffey SE**. Field Evaluation of Methods for Determining the Obstructed Section of Branches of Industrial Ventilation Systems. Journal of Occupational and Environmental Hygiene (JOEH), Vol. 1, No. 4, 248-255 (2004). \*Precepted doctoral student [ R 46 ]
26. Wu, C.F.\*\*, Yost, M.G., Hashmonay, R.A., Larson, T.V., and **Guffey, S.E.**, 2005. Applying Open-Path FTIR With Computed Tomography To Evaluate Personal Exposures. Part 1: Simulation Studies, Ann Occup Hyg. 2005 Jan;49(1):61-71. \*\*doctoral student precepted by Yost. [ R 29 ]
27. Li, J.\*\*, Yavuz, I., Celik, I.B., and **Guffey, S.E.** A Numerical Study of Worker Exposure to a Gaseous Contaminant: Variations on Body Shape and Scalar Transport Model Journal of Occupational and Environmental Hygiene. Vol 2, No. 6 / June 2005 pp323 – 334 \*\*Doctoral student precepted by Celik [ R 32 ]
28. Slagley\*, J.M., and S.E. **Guffey** (2006) *Active noise control of stageloader noise in longwall mining.* 2005 Transactions of the Society for Mining, Metallurgy, and Exploration, Inc., 318, 154-160. \*Precepted doctoral student [ R35 ]
29. **Guffey, SE**: Goal Method and a Target Method for Balancing Exhaust Ventilation Duct Systems with Dampers, accepted JOEH (August 2006). [R37 ]
30. Slagley, JM\* and S.E. **Guffey** *Part I - Effects of Cross-Sectional Dimensions on Active Noise Control in Rectangular and Round Ducts.* Journal of Occupational and Environmental Hygiene. \*Precepted doctoral student [accepted 28 Dec.'06] [ R 50 ]
31. Li, J\*\*, I Yavuz, I Celik, and SE **Guffey** (Submitted Sept '06) *Predicting the Worker Exposure – the Effect of Ventilation Velocity, Free-Stream Turbulence and Thermal Condition.* Journal of Occupational and Environmental Hygiene. \* Doctoral student precepted by Celik. [accepted May '07] [ R54 ]
32. Slagley, JM,\* and S.E. **Guffey** (Accepted June 2007) *Effects of Cross-sectional Partitioning on Active Noise Control in Round Ducts.* Journal of Occupational and Environmental Hygiene. \*Precepted doctoral student [ R53 ] **Accepted**

#### **Submitted for Peer-Review in 2006 and Awaiting Decision to Publish**

1. Slagley, JM,\* and SE **Guffey**, (Submitted May 2006) An Alternative Noise Dose Compliance Assessment Method for Mining and Checking of Underground Coal Mine

Noise Dosimetry Data," Journal of Occupational & Environmental Hygiene (10 March '06, JOEH-06-0023). \*Precepted doctoral student [ R56 ]

2. **Guffey, SE, Slagley\*, J, A El-Sotouhy\***: Proposed Additions to Ventilation Duct-Design Procedures, Journal of Occupational and Environmental Hygiene (Submitted: No. 04-1069). \*Precepted doctoral students [ R55 ]
3. El Nahas, W\*, **Guffey SE, Celik, I, and A Elstouhy,\*** Effects of Heating, Posture, and Air Velocity on Breathing Zone Concentrations for Anthropometrically-Correct Manikin in a Wind Tunnel (submitted 2 October '06). \*Precepted doctoral students [ R52 ]
4. Dodrill, M\* and S.E. Guffey. *Experimental validation of a target method for balancing exhaust ventilation duct systems with dampers*. Journal of Occupational and Environmental Hygiene [Submitted July '07]

### **In Preparation for Submittal for Peer Review in 2007**

1. El Nahas, W\*, **Guffey SE, and A Elstouhy,\*** Effects of Breathing, a Wig, Posture, and Air Velocity on Breathing Zone Concentrations for a Heated Manikin in a Wind Tunnel - Part II (will submit to JOEH after Nahas recovers), \*Precepted doctoral students
2. Elstouhy, A\*, **Guffey SE, and El Nahas, W,\*** Effects of Breathing, Posture, and Air Velocity on Breathing Zone Concentrations for Human Subjects in a Wind Tunnel - Part III (will submit to JOEH by March), \*Precepted doctoral students
3. Dodrill, M\* and **Guffey, SE**. Experimental Verification of a Proposed Balancing Method, (will submit to JOEH within one month), \*Precepted Masters student
4. Balasubramian, V \* and **Guffey, SE**. Effectiveness of the Common Method in Balancing Exhaust Ventilation Systems, \*Precepted Masters student

1. Refereed articles and/or abstracts appearing in conference proceedings.

The following 3 publications were peer-reviewed as full-length papers then published as papers in conference proceedings.

1. Kulman, J Gray, D Sivanagere, S and **Guffey, S** LDV and PIV Velocity Results in a Thermosiphon, presentation at "Forum on Fluid Measurements and Instrumentation," Am Soc of Mech Eng Fluids Eng Div Summer Meeting, Honolulu, Hawaii, July 2003. [ R 59 ]
2. Li, J.\*\*, Celik, I.B., Yavuz, I., and **Guffey, S.E.** "The Effect of Turbulence and Scalar Transport Models on Prediction of Worker Exposure to Aerosols," 4th ASME/JSME Joint Fluids Engineering Conference, Honolulu, Hawaii, July 6-10, paper No. FEDSM2003-45177 (2003). \*\*Celik Precepted doctoral student [ R 60 ]

3. Li, J.\*\*, Yavuz, I., Celik, I.B., and **Guffey**, S.E. (2004) "The Effect of Reynolds Number on the Ventilation Efficiency in a Wind Tunnel," Proceedings of HT-FED2004, ASME Heat Transfer/Fluids Engineering Summer Conference, July 11-15, 2004, Charlotte, North Carolina, USA, HT-FED2004-56035 \*\*Celik precepted doctoral student [ R 58 ]

### **Peer-Reviewed Conference Abstracts with Presentations**

1. **Guffey SE** and Fraser DA. A Power Balance Model for Converging and Diverging Flow Junctions. ASHRAE National Summer Meeting, 1990.
2. **Guffey SE** and Fraser DA. Kinetic Power Model of Junctions Losses. ASHRAE National Summer Meeting, 1990.
3. **Guffey SE**. Distribution of Airflows in Exhaust Ventilation Systems. ACGIH/AIHA National Conference 1990.
4. **Guffey SE** and Curran JC.\* Use of Power Balance to Model Pressures in Bilateral Junctions for Converging Flow Ventilation Systems. ACGIH/AIHA National Conference 1991. \*Precepted student
5. McLoone HE\* and **Guffey SE**. Effects of Hood Shape and Air Velocity on Pressure Loss of Suction Hoods. ACGIH/AIHA National Conference 1991. \*Precepted student
6. **Guffey SE**. A Computerized Data Acquisition and Reduction System for Velocity Traverses in a Ventilation Laboratory. ASHRAE National Summer Meeting, 1992.
7. **Guffey SE**. Modeling Existing Ventilation Systems Using Measured Values. ACGIH/AIHA National Conference 1992.
8. Barnea N\* and **Guffey SE**. Effect of Face Velocity, Flanges, and Mannequin Position on the Effectiveness of an Enclosing Hood. ACGIH/AIHA National Conference 1992.
9. **Guffey SE**, Rafnsdottir H\* and Emery AF. Effect of Face Velocity and Cross-drafts on the Effectiveness of an Enclosing Hood. ACGIH/AIHA National Conference 1992.
10. Rogers C\* and **Guffey SE**. Comparison of Effectiveness of Benchtop Enclosing and Capturing Hoods For Various Face and Cross-Draft Velocities. ACGIH/AIHA National Conference 1993. \*Precepted student
11. Flanagan ME\* and **Guffey SE**. Comparison of Tracer Gas Concentrations Sampled Simultaneously at the Lapel, Ear, and Nose. ACGIH/AIHA National Conference 1993. \*Precepted student
12. **Guffey SE**. Airflow Redistribution in Exhaust Ventilation Systems Using Dampers and Static Pressure Ratios. ACGIH/AIHA National Conference 1993.
13. Colvin SA and **Guffey SE**. Experimental Validation of the Power Loss Coefficients in Detecting Ventilation System Modifications and in Predicting New Airflow Levels and Pressures. ACGIH/AIHA National Conference 1994.
14. **Guffey SE**, Zhang X and Geiger H. Evaluation of a Proposed Static Pressure Ratio Method for Exhaust Ventilation Systems. ACGIH/AIHA National Conference 1998.

15. **Guffey SE** and Wang LS. Error from Using Shortcut Estimates Instead of Full Pitot Traverses. ACGIH/AIHA National Conference 1998.
16. **Guffey SE** and Flanagan ME. Air Sampling at the Lapel and Ear as Representative of the Breathing Zone. ACGIH/AIHA National Conference 1998.
17. **GUFFEY SE**. "Testing and Measurement of Ventilation Systems." ACGIH/AIHA National Conference 2001.
18. Yavuz, I., Li, J., Celik, I.B., and **Guffey, S.E.** (2002) Numerical Simulation of Airflow Around a Human Body in Wind Tunnel," ASME Fluids Engineering Division Summer Meeting , 2002, Montreal, Canada (Oral presentation)
19. **Guffey, SE** "Effects of Heating, Posture, and Air Velocity on Breathing Zone Concentrations for Manikin in a Wind Tunnel - Part I, C1 LEV Systems; Hoods, American Industrial Hygiene Conference and Exposition (AIHCE), Chicago, IL, 16 May 06
19. Yavuz, I., Li, J., Celik, I.B., and **Guffey, S.E.** CFD Simulation of Human Aerosol Exposure in a Wind Tunnel British Occupational Hygiene Society 2003 Annual Conference, London, England (2003)
20. Slagley, J.M.\*, S.E. **Guffey**, A. Hegde\*\*, Y. Luo, A. Rai, N. Boykov, and S. Peng (2004) *Characterization of Noise and Control Options in Longwall Coal Mining*. Poster at AIHCE, Atlanta, GA, May 04. \*Precepted doctoral student \*\*Precepted MS student
21. Slagley, J.M.\*, and S.E. **Guffey** (2005) "Active Control of Longwall Coal Mining Noise." Presentation at AIHCE, Anaheim, CA, 25 May 05. \*Precepted doctoral student
22. Slagley, J.M.\*, and S.E. **Guffey**. (2006). "Considerations for Active Noise Control in Ducts using Splitting Vanes for Multiple Duct Channels." In National Hearing Conservation Association Conference. Tampa, FL, 16-18 February 06. \*Precepted doctoral student
23. Slagley, J.M.\*, and S.E. **Guffey** (2006) "Effects of Diameter on Active Control of Random Noise in Circular Ducts." Presentation at American Industrial Hygiene Conference and Exposition (AIHCE), Chicago, IL, 18 May 06. \*Precepted doctoral student
24. **Guffey, SE** "Effectiveness of the Common Method in Balancing Exhaust Ventilation Systems," Testing, Balancing, Measurement, Air Distribution, American Industrial Hygiene Conference and Exposition (AIHCE), Chicago, IL, 15 May 06
25. **Guffey, SE** "Experimental Verification of a Proposed Balancing Method," B3 Testing, Balancing, Measurement, Air Distribution, American Industrial Hygiene Conference and Exposition (AIHCE), Chicago, IL, 15 May 06
26. **Guffey, SE** "A Proposed Target SPH Balancing Method," B3Testing, Balancing, Measurement, Air Distribution, American Industrial Hygiene Conference and Exposition (AIHCE), Chicago, IL, 15 May 06

27. **Guffey, SE** “Effects of Breathing, Posture, and Air Velocity on Breathing Zone Concentrations for Human Subjects in a Wind Tunnel - Part III,” American Industrial Hygiene Conference and Exposition (AIHCE), Chicago, IL, 16 May 06.
28. **Guffey, SE** “Effects of Breathing, a Wig, Posture, and Air Velocity on Breathing Zone Concentrations for a Heated Manikin in a Wind Tunnel - Part II,” C1 LEV Systems; Hoods, American Industrial Hygiene Conference and Exposition (AIHCE), Chicago, IL, 16 May 06
30. **Guffey, SE** “Balancing With Dampers,” RT A3 Reliable Industrial Ventilation Systems, American Industrial Hygiene Conference and Exposition (AIHCE), Chicago, IL, 15 May 06

### **Externally published book chapters**

1. Committee on Industrial Ventilation (**Guffey SE** sole author of chapter). Testing/Measurements, Industrial Ventilation. 24th Edition. February 2001 [R63, 64 ]
2. Committee on Industrial Ventilation (**Guffey SE** sole author of chapter). Balancing duct systems with dampers, Industrial Ventilation. 26th Edition. June 2006 Scheduled for publication in Spring '07 [ R 65 ]

Note: Industrial Ventilation is an engineering reference manual on the design and operation of industrial exhaust ventilation systems for contaminant control. I am a long-time member of the Committee on Industrial Ventilation, which is responsible for revised and adding to the Manual. The Committee as a whole is always listed as the author of each chapter, with the actual author not listed at all. In this case, I wrote both of the two chapters from “scratch,” using only a portion of existing text for the Testing/Masurement Chapter and no existing material for the Balancing Chapter. In both cases, members of the Committee submitted criticisms and suggestions after reviewing the rough draft, much like any review of a manuscript submitted to a journal (see letter dated 21 Dec. '06 from ACGIH in file). [ R 63 ]

3. **Guffey SE**. Editor. Proceedings of the Workshop on Ventilation Engineering Controls for Environmental Tobacco Smoke in the Hospitality Industry. US Department of Labor, OSHA/ACGIH Publications. June 1998

### **Peer-Reviewed Computer Program**

**Guffey SE**. *Heavent, A Computer Program for the Design and Redesign of Industrial Exhaust Ventilation Systems for Contaminant Control*. Distributed internationally by Am. Conf. Gov. Ind. Hyg. Publications and by Elite Software. Reviewed April 1993 by the *AIHAJ*.

**Non-Peer-Reviewed Publications**

1. **Guffey SE**, McKinney R and Woodcock R. Lead Exposure and Its Control in a Stained Glass Studio. Stained Glass, 74(1) (Spring 1979).
2. **Guffey SE**. The Four Most Important Principles of Hood Design. Ind. Hyg. News Report 29:3 (1986).

**Funding History at WVU**

Funding 2001- present

Research Title	Granting Agency	Dates of Award	Duration	Amounts on my award & green sheets	Amount for all investigators	My role
Enclosing hood effectiveness ①see Notice of Grant Award, 7/28/06	NIOSH 1 R01 OH008165-01A2	Aug '06 - Aug '09	3 yrs [R 38, 68]	\$ 521,069	\$882,717	PI
Real Time Hearing Protector Insertion Loss Study ②See Notice of Grant Award, 8/24/05	NIOSH 1 R01 OH008723	Aug '05 - Aug '08	3 yrs [R 36, 69]	543,055	543,055	PI
Training Grant for IH&S ③See Notice of Grant Award, 12/06/06	NIOSH 1 T01 OH008439	July '06 - July '10	4 yrs [R 67, 70]	239,400	239,400	PI
Noise Reduction by Anti-Noise Methods in Longwall Mining Faces	NIOSH 5R01OH7732	Sept '03 - Sept '06	3 yrs [R 25, 27, 28]	189,934	532,158	co-invest
IH Masters Training Grant	NIOSH T01/CCT310450	July '01 - July '06	5 yrs [R 4, 9, 23, 31, 34, 36]	284,819	284,819	PI
Comparison of Concentrations at Personal Sampling Locations	NIOSH 1 R01 OH07578	Aug '01 - Aug '03	3 yrs [R 3, 10, 24]	491,806	800,943	PI
<b>Total</b>				<b>\$2,270,033</b>	<b>\$3,283,092</b>	

## A. Funded Research

Title: Enclosing hood effectiveness  
Principal Investigator: Guffey  
Co-investigator: Ismail Celik  
Sponsor: NIOSH 1 R01 OH008165-01A2.  
Duration: August 2006 – July 2009

### Funding History

Year	Direct + Indirect (excluding funds for a co- investigator)	Total for Grant
'06-07	\$175,294	\$296,956
'07-08	\$166,127	\$276,879
'08-09	\$185,329	\$308,882
Total	\$526,751	\$882,717

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Title: Real Time Hearing Protector Insertion Loss Study  
Principal Investigator: Steven Guffey (there are no co-investigators or co-PIs)  
Sponsor: NIOSH/CDC  
Duration: Sept. 2005 – August 2008  
Amount: \$ 177,739 second year; \$548, 551 over 3 years.

### Funding History of To Date

Year	Direct + Indirect	Total for Grant
'05-06	\$183,679	\$183,679
'06-07	\$177,739	\$177,739
'07-08	\$181,637	\$181,637
Total	\$ 543,055	\$ 543,055

Title: Industrial Hygiene Masters Training Grant (competitive renewal)

Principal Investigator: Steven Guffey (there are no co-investigators or co-PIs) - 11% effort

Sponsor: NIOSH T01/CCT310450-011.

Duration: July 2006 – June 2010

Amount: \$59,400 this year; \$330,000 total for 5 years

Funding History of Training Grant

Amount:	Direct + Indirect
09-10	\$60,000
08-09	\$60,000
07-08	\$60,000
06-07	\$59,400
05-06	\$60,000
04-05	\$55,908
03-04	\$56,952
02-03	\$55,735
01-02	\$56,224

**B. Completed Funded Research at WVU:**

Title: Noise Reduction by Anti-Noise Methods in Longwall Mining Faces  
 Principal Investigator: Yi Luo  
 Co-P.I. Steven Guffey  
 Co-P.I. Syd Peng  
 Sponsor: NIOSH 5R01OH7732  
 Duration: Sept. 2003 – August 2005  
 Funding History

Year	Direct + Indirect (excluding funds for other investigators)	Total for Grant
04-05	\$60,975	\$141,400
03-04	\$60,663	\$225,600
02-03	\$68,296	\$165,158
Total	\$189,934	\$532,158

Title: "Investigation of Sampling Errors at the Lapel Using CFD with Experimental Verification Using Human Subjects."

Principal Investigator: Guffey  
 Co-Investigator: Celik, Dept. of MAE  
 Sponsor: NIOSH 1 R01 OH07578-02.  
 Duration: August 2001 – July 2004:  
 Amount: \$575,000 total funding

Year	Direct + Indirect (excluding funds for other investigators)	Total with Collaborators
'01 - '02	159,447	261,870
'02 – '03	146,936	250,293
'03 - '04	185,423	288,780
Total	491,806	800,943

### **C. Completed Funded Research at University of Washington**

- December 1987 – December 1988: "Power Balance Model Applied to the Addition and Removal of Branches from Existing Ventilation Systems," funded by the U.W. Industrial Hygiene Research Committee. Principal Investigator. \$6000.
- July 1988 – June 1989: "Power Balance Model Applied to the Redesign of Existing Ventilation Systems," funded by the U.W. Graduate School Research Fund. Principal Investigator. \$6100.
- October 1989 – September 1990: "Pressure Losses of Air Flowing into Ventilation Hoods," funded by the U.W. Industrial Hygiene Research Committee. Principal Investigator. \$815.
- October 1989 – September 1990: "The Effect of Flanges on the Collection Efficiency of Industrial Enclosing Hoods," funded by the U.W. Industrial Hygiene Research Committee. Principal Investigator. \$1030.
- September 1990 – January 1990: "Sharp-Edged Orifice For Flow Measurement in Ventilation Design Research," funded by Biomedical Research Support Grant. Principal Investigator. \$4000.
- October 1991 – September 1992: "The Effect of Cross-Draft Velocity on the Effectiveness and Efficiency of Simple Industrial Enclosing Hoods," funded by the U.W. Industrial Hygiene Research Committee. Principal Investigator. \$4800.
- August 1993 – August 1994: "A New Personal Air Sampler to Accurately Sample the True Breathing Zone," funded by U.S. Coast Guard. Principal Investigator. \$5430.
- September 1994 – August 1995: "Theory and Evaluation of a Workplace OP-FTIR Monitor." Co-Investigator, 10% effort. \$110,032 (subcontract).
- March 1995 – June 1997: Consortium for Risk Evaluation with Stakeholder Participation (CRESP), DOE Cooperative agreement # DE-FCO1-95EW55084. Co-Investigator, 10% effort. \$2,979,113 (subcontract).
- April 1993 – March 1996: "Field Validation of Power Coefficients and Static Pressure Ratios as Tools for Troubleshooting Existing Industrial Exhaust Ventilation," funded by Centers for Disease Control (CDC), NIOSH RO1 OH 03165. Principal Investigator, 50% effort. \$211,229.
- September 1995 – August 1999: "Theory and Evaluation of a Workplace OP-FTIR Monitor," NIOSH RO1 OH 02666-06. Co-Investigator, 15% effort. \$459,543.
- September 1999 – August 2001: "Evaluation of Dust Control Technologies in Construction NIOSH 1RO1 OH04039-01. Co-investigator 10% effort. \$153,119.

## Precepted students

### At West Virginia University

Summary Table for Students at WVU since 2001

Type	Chair, Current	Chair, Graduated	Member, Graduated
PhD	3	1	1
MS-Thesis	6	1	1
MS-Problem Report	2	1	1

### Current Students for Whom I am Currently Chair of the Committee

Student Name	Res. Type	Title of dissertation, thesis, or report	Description	Progress
Ahmed El Sotouhy	PhD	Effect of Breathing, Posture, and air velocity on Breathing Zone Gas Concentrations for Human Subjects in a Wind Tunnel	Exposure assessment	Defend March 07
Mingyu Wu	PhD		Noise assessment	Collecting data
Brandon Takacs*	PhD		Noise assessment	Collecting data
Nichole Custer	MS-IH Thesis*		Noise assessment	Data collected
John Engel	MS-IH Thesis		Hood design	Collecting data
Braxton Lewis	MS-IH Thesis		Hood design	Collecting data
Raphael Dodrill	MS-MAE Thesis		Ventilation design	Collecting data
Maria Sanguietti	MS-IH Thesis		Noise assessment	Collecting data
Monica Graziani	MS-IH Thesis*		Exposure assessment	No data
Nan Key	MS-IH Problem Report*		Ventilation design	First draft of problem report
Luke Szczepanski	MS-IH Problem Report*		Noise assessment	No data

\*Part-time students; fully employed. Completed coursework. All other students are full time and still doing coursework.

Graduated Students Whose Committees I Chaired This Year

Student Name	Res. Type	Title of dissertation, thesis, or report	Description	Degree and Date of Grad.
Jeremy Slagley	PhD-IH	Effects of diameter and cross-sectional partitioning on active noise control in round ducts	Passive noise controls	2006
Walid Elnahas	PhD-IE	Effects of heating, breathing, hairstyle, postures, and air velocity on breathing zone concentrations of an anthropometrically correct manikin in a wind tunnel	Exposure assessment	2005
Justin Klavan	MS-IH Problem Report	Suggested Work Procedures for Maintenance Activities Involving Asbestos-Containing Building Materials at West Virginia University	Asbestos control	2006
Ranjit Jongam	MS-IE Thesis	Relationship between Damper Resistance and Damper Insertion Depth	Ventilation design	2006

Graduated Students On Whose Committees I Served as a **Member** This Year

Student Name	Res. Type	Title of dissertation, thesis, or report	Description	Date of Grad.
Thomas McDowell	PhD-OH&S	An Evaluation of Vibration and Other Effects on the Accuracy of Grip and Push Force Recall	Ergonomics	2006
Brandon Law	MS-IH Thesis	Characterization of Laboratory Simulated Road Paving-Like Asphalt by High Performance Liquid Chromatography and Gas Chromatography-Mass Spectrometry	Exposure assessment	2006
Irfan ul haq Toor	MS IE Problem Report	MedicSoft - Model for the Economic Evaluation of Dust Interventions in the US Construction Companies	Engineering economics	2006

### Precepted students at the University of Washington

<b>Graduated</b>			
<u>Student Name</u>	<u>Res. Type</u>	<u>Membership</u>	<u>Date of Grad.</u>
Curran, JC	MS Thesis	Chair	1990
McLoone, HE.	MS Thesis	Chair	1990
Barnea, N.	MS Thesis	Chair	1991
Rafnsdottir H	MS Thesis	Co-Chair	1992
Rogers, C	MS Thesis	Chair	1992
Flanagan ME	MS Thesis	Chair	1993
Colvin S.	MS Thesis	Chair	1993
Spann J.	MS Thesis	Chair	1993
Carrell T	MS Thesis	Chair	1993
Gahn JA	MS Thesis	Chair	1994
Hoppe J.	MS Thesis	Chair	1995
Pinsky A.	MS Thesis	Chair	1996
Moody D.	MS Thesis	Chair	1996
Yu D.	MS Thesis	Chair	1996
Wang LS	MS Thesis	Chair	1997
Wang LS	MS Thesis	Chair	1997
Booth DW.	PhD	Chair	1998

## Teaching

### A. Formal teaching, semester courses taught at WVU

<u>Semester/Year</u>	<u>Course No.</u>	<u>Title</u>	<u>Credit Hrs</u>	<u>Enrollment</u>
Fall/2006	IENG 213	Probability and Statistics.	3	46
Fall/2006	IH&S 528	Industrial Ventilation	3	11
Spring/2006	IH&S 725	Advanced Industrial Hyg.	3	6
Spring/2006	IH&S 527	Noise Control Eng.	3	6
Fall/2005	IENG 213	Probability and Statistics.	3	34
Fall/2005	IH&S 528	Industrial Ventilation	3	7
Spring/2005	IENG 213	Probability and Statistics	3	47
Spring/2005	IH&S 527	Noise Control Eng.	3	6
Fall/2004	IMSE 213	Probability and Statistics.	3	30
Fall/2004	IH&S 528	Industrial Ventilation	3	12
Spring/2004	IMSE 213	Probability and Statistics	3	47
Spring/2004	IH&S 627	Noise Control Eng.	3	9
<u>Semester/Year</u>	<u>Course No.</u>	<u>Title</u>	<u>Credit Hrs</u>	<u>Enrollment</u>
Fall/2003	IMSE 213	Probability and Statistics.	3	34
Fall/2003	IH&S 628	Industrial Ventilation	3	12
Spring/2003	IMSE 213	Probability and Statistics	3	47
Spring/2003	IH&S 627	Noise Control Eng.	3	9
Fall/2002	IMSE 213	Probability and Statistics.	3	24
Fall/2002	IH&S 628	Industrial Ventilation	3	12
Spring/2002	IMSE 360	Human Factors Eng.	3	27
Spring/2002	OHOS 627	Noise Control Eng.	3	10
Fall/2001	IMSE 360	Human Factors Eng.	3	20
Fall/2001	OHOS 628	Industrial Ventilation	3	10
Spring/2001	IMSE 360	Human Factors Eng.	3	15
Summer/2001	OHOS 628	Industrial Ventilation	3	9

## **B. Other Teaching Activities at WVU**

List other teaching activities (e.g. development of new courses, distance learning courses, advising students, supervising senior design students, etc.)

Developed completely new course materials for IMSE 213

Developed completely new course materials for IMSE 360

Developed completely new course materials for IH&S 527

Developed completely new course materials for IH&S 527

Revised course materials for IH&S 725

Advisor to all first year IH students

Advisor to 7 undergraduate IMSE students

## **C. Courses taught at U.W.**

1. ENVH 511: Environmental and Occupational Health, 3 credits, Winter 1999, 2000. 100% responsibility, 70 students.
2. ENVH 557: Industrial Ventilation I, 4 credits, Winter 1989–2000. 100% responsibility, 7-13 students.
3. ENVH 558: Industrial Ventilation II, 3 credits, Spring 1989–1998, 2000. 100% responsibility, 3-12 students.
4. ENVH 454: Industrial Hygiene Measurements, 3 credits, Spring 1997–2000. 50% responsibility, 14–28 students.
5. ENVH 590: Advanced Industrial Hygiene Sampling, 2 credits, Spring 1990. 40% responsibility, 8 students.
6. ENVH 457: Industrial and Environmental Noise, 2 credits, Spring 1988. 20% responsibility, 7 students.

### Guest lecturer in other graduate and undergraduate courses:

5. ENVH 454: Industrial Hygiene Sampling and Instrumentation, Winter 1988–1996, Ventilation and Temperature Measurement, 3-hour lecture, 10-20 students each year.
6. ENVH 453: Ventilation, Fall 1987–1992. Three one-hour lectures, 35-50 students each year.
7. ENVH 553: Instrumental Methods for Industrial Hygiene Measurement, Winter 1988, 2-hour lecture, 8 students.

Other teaching in chronological order (continuing education) at U.W.

1. Wood Dust Exposure Assessment and Control, April 2000, University of Washington: Course director and speaker for 1-day course, 50 students expected.
2. Industrial Ventilation Design, October 1999, University of Washington: 100% responsibility for 3-day course, 35 students.
3. Industrial Ventilation Design, October 1998, University of Washington: 100% responsibility for 3-day course, 35 students.
4. Industrial Ventilation Design, August 1996–1998, University of Wisconsin: 100% responsibility for 5-day course (successor course to what had been two consecutive courses lasting 3-days and 2-day combination, respectively), 30 students on average.
5. Industrial Ventilation Design, July 1983–1998, University of Toledo: 100% responsibility for 3-day course, 35 students on average.
6. Advanced Industrial Ventilation Design, July 1984–1998, University of Toledo: 100% responsibility for 2-day course, 25 students on average.
7. Industrial Ventilation Design, September 1983–1995, University of Wisconsin: 100% responsibility for 3-day course, 30 students on average.
8. Advanced Industrial Ventilation Design, September 1984–1995, University of Wisconsin: 100% responsibility for 2-day course, 25 students on average.
9. Confined Space Entry, January 1993, University of Washington: 1 lecture in 2-day course, 55 students.
10. Basic Industrial Hygiene, December 1992, University of Washington: directed and taught 4 lectures in 3-day course, 55 students.
11. Advanced Industrial Ventilation Design, November 1988 & 1991, University of Washington: 100% responsibility for 3-day course, 25 students.
12. Industrial Ventilation Design, October 1987 & 1988, University of Washington: 10% responsibility for 3-day course, 35 students.

## Service

### To the IH Profession while at WVU

**Chair**, American Industrial Hygiene Association Engineering Committee (2006)  
[R22]

**Member, Editorial Review Board**, Journal of Occupational and Environmental Hygiene, (2003- present) [R13, 17]

Note that Editorial Board membership includes a requirement to frequently review manuscripts for possible publication.

**Reviewer**, Society of Mining Engineers (2006 – present). [ ]

**Member**, Committee on Industrial Ventilation of the American Conference of Governmental Industrial Hygienists (1983-present) [S18]

**Member, Organizing Committee** for the International Ventilation Conference (2005-2006) [S22]

**Member**, British Occupational Hygiene Society, 2005 - present. [S 19]

**Presented** 8-hour Professional Development seminar on “Hood Design and Ventilation Measurements” at the American Industrial Hygiene Conference and Exposition at the AIHCE in 2004, 2005, and 2006 [S 6, 9, 23, 24]

**Moderator**: “Industrial Ventilation Design - New Developments” at the 2006 AIHCE [S 22]

**Member**, American Conference of Governmental Industrial Hygienists (1974 – present)

**Member**, American Industrial Hygiene Association (1974 – present) [S 18, R63]

**Member**, American Society of Heating, Refrigerating and Air-Conditioning Engineers (1974 – present). [ ]

**Technical auditor** for American Industrial Hygiene Professional Development Seminar “Investigative Photography” at the AIHCE in May '05 [S 7]

**Moderator**: “Progress in Controlling Respirable Crystalline Silica Exposures in Construction at the AIHCE in May '05 [R 57]

**Vice-Chair**, American Industrial Hygiene Association Engineering Committee (2005) [previously Vice-Chair and Secretary]

**Member, Editorial Board**, American Industrial Hygiene Journal, 1990 - 2003.

Note that Editorial Board membership included a requirement to frequently review manuscripts for possible publication. This journal was the predecessor to the JOEH above. [S 13, 17]

**Speaker:** Industrial Ventilation System Testing and Troubleshooting, Forum 302 at the American Industrial Hygiene Conference and Exhibition, (2001) [S 21]

University of Toledo (2002): 5-day ventilation design short course

**Past Member Editorial Board,** Applied Occupational and Environmental Hygiene (1992-1995)

**Past Editorial Advisory Board,** Occupational Health & Safety

**Past Member,** Technical Committee 5.2 ("Duct Design"), American Society of Heating, Refrigerating and Air-Conditioning Engineers

**Past Member,** Standards Project Committee 120 ("Methods of Laboratory Testing of Air Duct and Fittings to Determine Flow Resistance"), American Society of Heating, Refrigerating and Air-Conditioning Engineers

**Past Member,** Noise Committee of the American Industrial Hygiene Association

**Past Chair,** Industrial Ventilation Subcommittee, American Industrial Hygiene Association Engineering Committee

**Past Member,** Computer and Data Processing Advisory Committee of the University of North Carolina at Chapel Hill, School of Public Health

**Past Director,** Carolinas Section of the American Industrial Hygiene Association

## **Consulting while at WVU**

- Kesner, Kesner, & Bramble law firm (2005): Consulted on exposures to MDI and resulting illness in a court case
- Consultant for Pacific Terminal of Seattle (2005): Consulted on sampling and engineering controls for carbon dioxide exposures on barges
- Consultant for John Mansville of Ohio (2005): Engineering consulting
- Mead Forge, Inc. of Pennsylvania (2005): Engineering consulting
- Farrell, Farrell & Farrell, L.C. firm (2005): Consulted on exposures in coal mining
- Tyson Foods (2004): Consulted on fatal exposure to hydrogen sulfide and recommended administrative and engineering controls
- Goodell, DeVries, Leech & Dann, LLP (2005): Consulted on issues related to series of tort cases involving silica exposure
- Eckert Seamans Cherin & Mellott, LLC (2005): Consulted on exposures and court case for Viacom/Phillips
- Flaherty Sensabaugh & Bonasso, PLLC (2004): Consulted on legal case involving chemical exposures
- Avis, Witten & Wandling Law Offices (2004): Consulted on legal case involving epoxy exposures
- Martinsburg Fire Dept. (2004): Consultant and Expert witness for legal case involving diesel exposures.
- Reviewed new edition of engineering statistics textbook (Montgomery) for Wiley (2004). [S 8]
- W. L. Gore and Associates, Inc. (2003): Consulted on exposures to formaldehyde and recommended engineering solutions
- Reviewed ergonomics text for (2002)

## University Service

- A. Committee responsibilities at WVU. Indicate role and level of responsibility on committees (member, chairman, etc.), date of service, and significant aspects of your service to committees (if appropriate) for:
1. Service to University (WVU):
    - Member: Advisory Committee for the Institute of Occupational and Environmental Health, Dept of Community Medicine, WVU School of Medicine (2002 – present)
  2. College committees:
    - Chair: CEMR Graduate Programs and Research (2005-present)  
[Note: re-wrote PhD guidelines for the College, finished MS guidelines, membership standards for membership in the graduate faculty]
    - Member: CEMR Graduate Programs and Research (2004-2005)
  3. Departments committees:
    - Member, IMSE Undergraduate Academic Affairs Committee (2003-present)
    - IMSE Undergraduate Standards Committee (2001 - 2002)
    - Advisor, WVU Student Section of the AIHA (2001- present)
    - Chair, IH Admissions Committee (2001- present)
    - Advisor, IMSE Graduate Student Association (2001- 2005)
    - Member, IMSE Promotion and Tenure Committee (2003-2004)
    - Member, Ergonomics Faculty Search Committee (2003)