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# Bruce Eugene Davis

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## Functional Summary

- Over 30 years experience in applied building science, including contributing locally and nationally through hundreds of on-site commercial and residential diagnostic investigations, formal research initiatives, consulting, publications, conferences, workshops, training courses, and small group or one-on-one field training.
- Initiated some of the earliest research on the impacts of duct leakage and repair and introduced the use of pressure pans as a duct system diagnostic tool.
- Initiated research on the energy and moisture performance of closed crawl spaces and research investigating the connections between buildings and health which influence everyday construction practice.
- Leadership experience: Appalachian Energy Center interim director, private sector closed crawl space initiative, project management, research sector director and team administration responsibilities, and leading the creation of research proposals and subsequent contract negotiations and management.

## Employment

May 2008 – June 2011      **Appalachian Energy Center**      Boone, NC  
**Appalachian State University**

**Energy Research Scientist**      5/2008 – 6/2011

- Work with Technology Dept. faculty, Energy Center staff and others to develop and guide research initiatives and then author reports, consult on building performance issues, provide training and presentation services, work with other stakeholders to revise building codes, create new funding resources, and mentor students. Interim Director 1/2011 – 6/2011.

Jan 2007-Sept 2007      **CrawlSpace Care Technologies**      Greensboro, NC

**Vice President**      1/2007-9/2007

- Responsible for expanding the network of authorized dealers who could deliver CrawlSpace Care foundation systems in new construction and existing homes. This included recruitment, training, technical developments, marketing, consulting, presentations, building code support, and on-site installation support.

<b>Employment</b>	1992-2006	<b>Advanced Energy</b>	Raleigh, NC
		<b>Senior Consultant</b>	2005-2006
		<ul style="list-style-type: none"> <li>Responsible for technical support for current research initiatives, business organizational development and consulting, building diagnostics development and training, and the creative development of projects, program design, and research proposals.</li> </ul>	
		<b>Research Director</b>	2000-2005
		<ul style="list-style-type: none"> <li>Responsible for developing a portfolio of research activities that both supported existing Applied Building Science Team programmatic and training functions and established ground breaking material for development of new business activities. Secured \$3,000,000 in outside revenue through research contracts from both public and private sources.</li> </ul>	
		<b>Senior Building Science Specialist</b>	1992-2000
	<ul style="list-style-type: none"> <li>Responsible for diagnostic investigations of the interactions that cause building failure in commercial and residential structures. Pursued development of diagnostic procedures, equipment and training, with specialty areas of combustion safety and residential ventilation systems. Participated in program management, program design, presentations and training, and on-site diagnostic projects.</li> </ul>		
	1977-1992	<b>Economic Opportunity Agency</b>	Fayetteville, AR
		<b>Home Comfort Manager</b>	1990-1992
		<ul style="list-style-type: none"> <li>Responsible for residential program management and building research, training, consulting, performance testing, and improvements. Also published a study measuring air leakage in forced air distribution systems and the savings possible from applying duct air sealing procedures.</li> </ul>	
		<b>Housing Director</b>	1979-1990
		<ul style="list-style-type: none"> <li>Coordinated the operation of Weatherization, Housing Rehabilitation, Self-Help Weatherization, and Farmers Home Administration Housing Rehabilitation Grants. Responsible for grant proposals, program development, program management, budget and administrative reports for this \$500,000 division.</li> </ul>	
		<b>Weatherization Coordinator</b>	1977-1979
		<ul style="list-style-type: none"> <li>Administered a Weatherization Program, including learning the basics of the thermal performance characteristics of homes, learning Department of Energy Program guidelines and then supervising carpenter crews in the applications of this knowledge in the weatherization of homes.</li> </ul>	
<b>Education</b>	1973-74	University of Virginia	Ph.D. Candidate (Sociol.) Charlottesville
	1973	University of Arkansas	M.A. Sociology Fayetteville
	1969	University of Arkansas	B.A. Sociology & Political Science, Mathematics (minor) Little Rock

**Professional Memberships**

North Carolina licensed general contractor — commercial and residential  
Arkansas licensed HVACR contractor

**Presentations**

Hundreds of building science workshops and papers presented at conferences across the country plus contracted training classes

**Publications**

"2012 North Carolina Energy Conservation Code" [Developed with others over a two year period]	Appalachian Energy Center	June 15, 2011* Adopted [Effective 3/2012]
"Preliminary Report on Revised Duct Design Performance"	Appalachian Energy Center	August 20, 2009*
"Radiant Barrier Impact on Selected Building Performance Measurements: Model Home Case Study"	Appalachian Energy Center	March 31, 2009*
"Vented Crawlspace as Mold Amplification and Delivery Systems? Measured Performance and a Dry Alternative"	ASHRAE Indoor Air Quality	Spring 2008* [Presented Oct 2007, Baltimore, Maryland]
"Case Closed: Closed Crawl Space Solutions Provide Growth Opportunities"	Pest Control Technology	March 2007*
"Characterizing Crawl Spaces as Sources of Mold in the Home Environment "	Research Reports for U.S. Dept. of Housing & Urban Development: A Two Part Component of a Duke University Healthy Homes Contract	September 30, 2005*
"Crawl Space Characterization"		
"Long-Term Temperature and Relative Humidity"		
"A Field Study Comparison of the Energy and Moisture Performance Characteristics of Ventilated Versus Sealed Crawl Spaces in the South"	U.S. Dept of Energy Funded Research Report # DE-FC26-00NT40995	June 2005* Four Part Report, Final

## Publications

"Closed Crawl Spaces: An Introduction to Design, Construction, and Performance"	U.S. Dept of Energy Funded Guide for Installers and Consumers # DE-FC26-00NT40995	April 2005*
"Closed Crawl Spaces Do Double Duty"	Home Energy	January 2005* Special Issue
"Moisture Performance of Closed Crawl Spaces and their Impact on Home Cooling and Heating Energy in the Southeastern U.S."	Proceedings: Performance of Exterior Envelopes of Whole Buildings IX	December 5-10, 2004*
"Double Duty"	Pest Control Technology	October 2004*
"Section R409, Closed Crawl Spaces" North Carolina Building Code	Authored code language for new section adopted by the North Carolina Building Code Council	September 2004* [For immediate reference and use and to be printed in 2006 code addition]
"Moisture Solution Becomes Efficiency Bonanza in Southeastern United States"	Proceedings: ACEEE Summer Study	August 2004*
"Crawl Space Mold: Liability or Business Opportunity?"	Pest Control Technology	June 2003*
"Crawl Space Ventilation and Moisture Control Research"	Wood Design Focus	Summer 2003*
"Moisture Results"	Crawl Space Research Update	April 2003*
"A Field Study Comparison of the Energy and Moisture Performance Characteristics of Ventilated Versus Sealed Crawl Spaces in the South"	U.S. Dept of Energy Funded Research Report # DE-FC26-00NT40995	February 2002* First Year Pilot Reports
"Building For Better Breathing"	Home Energy	September-October 1998

## Publications

"Mechanical Ventilation in Houses in the Southeast, Doing the Right Thing Not-Quite-Right"	Proceedings: ACEEE Summer Study	August 1998
"The House That Bruce Built"	Selected Readings: Affordable Comfort Conf.	May 4-9, 1998 Madison, WI
"Today's Weather: Rain in the Living Room!"	Home Energy	March-April 1997
"AEC Teaches Airtight Ducts"	Heat Pump Skills Center Newsletter	January 1996
"Powered Attic Ventilators Bring Unforeseen Problems"	The Journal of Light Construction	September 1995*
"Notes From the Crawlspace"	AEC Energy Update	Fall 1995
"Dazzling Color Hoses — More Than A Fashion Statement"	Home Energy	July-August 1995
"On Safety Hazards with Powered Attic Ventilators"	Energy Design Update	June 1995*
"Forum Focuses on Commercial Buildings"	AEC Energy Update	Summer 1995
"The Dangers Of Powered Attic Ventilators"	Energy Design Update	April 1995*
"The Unplanned Impacts On Houses By Powered Attic Ventilators"	Proceedings: Thirteenth Annual EEBA Conference	March 8-11, 1995* Minneapolis, MN
"Powered Attic Ventilators, Another Applied Building Science Nightmare and Treasure Trove"	Proceedings: ACEEE Summer Study	August 1994*
"Diagnosing Ducts: Leak Detectors: Experts Explain the Techniques"	Home Energy	September-October 1993*
"Using the Pressure Pan technique to prioritize duct sealing efforts: a study of 18 Arkansas homes"	Energy And Buildings	August 1993*

## Publications

"The Impact of Air Distribution System Leakage on Heating Energy Consumption in Arkansas Homes"	Proceedings: Tenth Annual EEBA Conference	March 4-7, 1992 Durham, NC
"The Impact of Air Distribution System Leakage on Heating Energy Consumption in Arkansas Homes"	Home Comfort Research Report, Contract #: AEO-EOAWC – 90-001	September 12, 1991
"How Much to Repair a Small Piece of Bad Flooring?"	Energy Exchange	August 1991
"Mother Hen, Chicks and Combustion Safety"	Proceeding: Eighth Annual EEBA Conference	April 4-6, 1990 Denver, CO
"Mother Hen, Chicks and Combustion Safety"	Southern Comfort	Fall 1989
"Notes on Practical Weatherization and Building Science"	Residential Energy Forum	Summer 1989
"Blower Door Assisted Transition in Weatherization Techniques in Northwest Arkansas"	Proceedings: Sixth Annual EEBA Conference	April 27-29, 1988 Portland, ME
"Weatherization in Transition in Northwest Arkansas"	Energy Auditor and Retrofitter	September- October 1987

\* co-authored articles