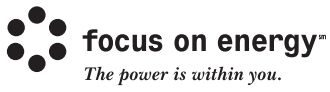


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# Forced Air Heating and Cooling Systems

Presenting faculty: Douglas Garrett, CEM

Brush up on the basics of forced air heating and cooling systems and drill down to more advanced techniques like diagnostic testing to address problems. Based on the Air Conditioning Contractors of America (ACCA) protocols and the ACCA Quality Installation standard for field commissioning of residential HVAC systems, understand load calculations and how to verify them using the ACCA Manual J.

Testing, testing, testing gives your customers quality systems that enhance comfort! Discuss duct materials and commonly used designs for air distribution systems, design errors and how to address them. Learn to ensure your system's durability by using ANSI quality installation standards and performance testing to verify manufacturer operation specifications.

This new full-day training is presented by one of the nation's leading building science professionals Doug Garrett and offers RESNET credits for certified raters and auditors, and qualified contractors and builders.

**BENEFITS OF ATTENDING:**

Learn the essentials of forced air heating and cooling systems; including design basics, quality equipment and installation, load calculation, ventilation and advanced diagnostic techniques.

**AS A RESULT OF THIS TRAINING YOU WILL BE ABLE TO:**

- Explain the fundamentals of duct design and equipment selection
- Analyze and verify load calculations
- Evaluate duct distribution systems
- Detect and diagnose problems using static pressure and airflow testing

**WHO SHOULD ATTEND?**

Certified RESNET Raters, HVAC installers and service technicians, building performance consultants, residential builders, contractors, designers and architects, code officials, and anyone interested in quality HVAC design.

**WHEN/WHERE**

November 10, 2010  
Gustave A. Larson Company  
W233 N2869 Roundy Circle West, Pewaukee, WI 53072  
262.542.0200

November 11, 2010  
The Plaza Hotel & Suites  
1202 W. Clairemont Avenue, Eau Claire, WI 54701  
715.834.3181

**AGENDA**

8 am: Registration and continental breakfast  
8:30 am–4:30 pm: Program (lunch, breaks provided)

**COURSE OUTLINE**

- How to verify a load calculation
- What are the most commonly made mistakes?
- Basics of duct design
- Basics of equipment selection
- Basics behind load calculations
- What are the required inputs for a heat loss/heat gain calculation?
- What inputs have the biggest impacts on sizing?
- ANSI HVAC Quality Installation Standard
- Static pressure tests
- How to correctly take the measurement and interpret results
- Air Flow tests
- Pluses and minuses of each method

**CONTINUING EDUCATION UNITS**

The Energy Center of Wisconsin is an Authorized Provider for the International Association for Continuing Education and Training (IACET) and is committed to developing quality learning activities. You will receive 0.7 Continuing Education Units for attending this workshop. Credit approval is pending for the American Institute of Architects (AIA), the Wisconsin Department of Commerce, Building Performance Institute (BPI) and the National Association of the Remodeling Industry (NARI) Certified Remodeler Certification.

The Energy Center of Wisconsin is providing this RESNET approved training on behalf of Wisconsin Energy Conservation Corporation, a RESNET approved training Provider, and Focus on Energy, Homes Program. By attending this training and successfully completing the test you will receive 7 RESNET credits that will apply to your Professional Development requirement.

**COST**

The registration fee for attending this training is \$129, which includes continental breakfast and lunch.

**QUESTIONS?**

If you need more information, want to cancel or make a substitution, or you have not received a confirmation and it is one week before the event, please contact Kristi Kaiser at 608.238.8276 x135 or [kkaiser@ecw.org](mailto:kkaiser@ecw.org).

## REGISTRATION FORM—Forced Air Heating and Cooling Systems

**PLEASE REGISTER ME FOR**  
Forced Air Heating and Cooling  
Systems—\$129

- November 10, 2010—Pewaukee, WI
- November 11, 2010—Eau Claire, WI

**REGISTRATION DEADLINE**  
All registrations must be made in advance.

**PAYMENT**  
Only credit card (Visa, MasterCard or  
American Express) payments are  
accepted online.

**ONE FORM PER ATTENDEE**

First name \_\_\_\_\_  
(as you would like it to appear on your name badge)

Last name \_\_\_\_\_

Title \_\_\_\_\_

Organization \_\_\_\_\_

Mailing Address \_\_\_\_\_

City \_\_\_\_\_ State \_\_\_\_\_ Zip \_\_\_\_\_

Phone \_\_\_\_\_

Email \_\_\_\_\_

Fax \_\_\_\_\_

NOTE: If you include your fax number, this will serve as consent to receive information via fax

If you have dietary/accessibility needs, please specify:  
\_\_\_\_\_

**PAYMENT INFORMATION**

Check enclosed (please make check payable to Energy Center of Wisconsin)

Visa       Mastercard       American Express

Credit card # \_\_\_\_\_

Expiration date \_\_\_\_ / \_\_\_\_      Security code \_\_\_\_\_  
(3-digit number on card back)

Name on card \_\_\_\_\_

Signature \_\_\_\_\_

**METHOD OF REGISTRATION**

(payment by credit card or check must accompany registration)

1. **Online:** [www.ecw.org/university](http://www.ecw.org/university)
2. **Phone:** 608.238.8276 x135
3. **Fax to:** 608.238.0523
4. **Mail to:** Energy Center of Wisconsin  
Forced Air  
455 Science Drive, Suite 200, Madison, WI 53711

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## About the presenter...

**Douglas Garrett, CEM**

President, Building Performance & Comfort Inc., Leander, Texas

Doug Garrett is a building science professional who offers forensic diagnosis and testing of structures from a "buildings are systems" approach. He helped write the City of Austin's first energy code and worked in their Green Building Program. Doug has several professional certifications, including the Association of Energy Engineers Certified Energy Manager, ACCA (Air Conditioning Contractors of America) certification as an Instructor for Sizing Equipment (J), Duct Design (D), and Equipment Selection (S), the BPI certifications in Building Analyst, HVAC and Heat Pump Professional, and Envelope Professional, the National Comfort Institute certification in air balancing and a few more. He has served on numerous committees and task forces, including the Texas State Dept. of Health Taskforce on Mold, the Texas Dept. of Housing and Community Affairs Low Income Weatherization Program Policy Advisory Committee, and the NATE Technical Advisory Committee.

## Energy Center University

Powered by the Energy Center of Wisconsin, Energy Center University offers live event and online continuing education programs to more than 4,000 commercial, industrial and residential building professionals every year. Learn the latest strategies to design, build and maintain high performance energy efficient buildings.

Energy Center University is an Authorized Provider for the American Institute of Architects, Illinois Society of Professional Engineers, International Association for Continuing Education and Training, and the U.S. Green Building Council.



455 Science Drive, Suite 200, Madison, WI 53711

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### Mastering Infrared Thermography

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*Presenting faculty:* John Snell

November 9, 2010—1:00 pm–2:30 pm Central Time

### Advanced Air Sealing and IAQ Issues

*Presenting faculty:* Keith Williams

December 1, 2010—Kaukana, WI

December 2, 2010—Milwaukee, WI

### Better Buildings: Better Business Conference

March 2–4, 2011—Wisconsin Dells, WI

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RESIDENTIAL TRAINING SERIES

# Forced Air Heating and Cooling Systems

*Presenting faculty:* Douglas Garrett, CEM

November 10, 2010 in Pewaukee, WI

November 11, 2010 in Eau Claire, WI

Register now at [www.ecw.org/university](http://www.ecw.org/university)

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