MASTERS OF HVAC

AAON®

Building a Strong Foundation for
Top Performing Sales Representatives

MASTERS OF HVAC

At AAON, we're committed to driving our industry forward through the design, manufacturing, and rigorous testing of innovative air solutions for a cleaner and more sustainable future. In addition to building the most efficient and reliable HVAC equipment on earth, we're dedicated to providing world-class training programs for all AAON Sales Representatives.

The AAON Masters of HVAC training program is offered to all AAON Sales Representatives and is widely considered one of the most advanced in-depth HVAC training program available today. Since 2017, AAON has partnered with industry expert Joe Becker and Becker Learning to develop this custom-tailored program with specific focus on empowering AAON Sales Representatives to develop a high level of proficiency operating, optimizing, and selling AAON HVAC equipment.

PROGRAM LOGISTICS

The AAON Masters of HVAC program offers 2 tracks a year. The first track is offered from January through June, while the second track is offered from July through December. Classes are scheduled the first week of every month for six consecutive months. Participants should be prepared for consistent travel to AAON locations during the six-month period.

- Students are required to attend one week of training per month for six months at the AAON factory. Complete class schedule dates will be provided before the first week of class.
- Weeks 1, 2, 3, 4, & 6 will be held at the AAON's Tulsa plant. During week 5, participants will meet at AAON's Longview, Texas plant.
- AAON will reserve hotel rooms for each student and will pay 100 percent of the cost.
- Each day, breakfast and lunch will be provided by AAON. Breakfast will be available at the hotel prior to leaving for the plant. Lunch will be provided at the plant. Students will be responsible for dinner.
- Shuttle transportation is provided between the Tulsa airport and the hotel, as well as transportation to and from the hotel and the AAON facility. Students will be responsible for their transportation between the hotel and airport for the class session during week 5, which is held at the Longview facility.

FROM THE CEO

Since the inception of the AAON Masters of HVAC program, more than 260 students have enrolled and graduated. What do they all have in common? They are from the top performing companies in their respective markets.

The Masters of HVAC training program has proven to be an invaluable learning opportunity for AAON Sales Representatives. Anybody involved in the HVAC industry will find the classes to be both informative and helpful in understanding the fundamentals of this business.

We are beyond grateful for the support we have received for this program and enjoy seeing the positive reviews from past students. We look forward to assisting more graduates in setting a foundation for a successful career in not only HVAC, but also in selling AAON.

Sincerely,

President/CEO

JOE BECKER & BECKER LEARNING

Joe Becker is a renowned instructor in the HVAC industry, combining his educational background in engineering with a high level of communication skills effective for teaching students from various backgrounds.

Becker is a graduate of the U.S. Naval Nuclear Power School at Mare Island, California (1975), holds degrees in Naval Science & Industrial Engineering from the University of Wisconsin-Madison (1979), is a Counselor Selling, Leader Trained - Wilson Learning Institute (1987), and a Registered Professional Engineer (1990). He has an extensive work history in the U.S. Navy, as well as decades of HVAC experience working for a large HVAC manufacturer as an engineer, trainer, and sales manager.

Joe Becker now uses his years of teaching experience and vast wealth of technical knowledge for his Becker Learning training program, where he has taught thousands of engineers, contractors, and technicians throughout the United States, Canada, and Puerto Rico.

"Having attended many trainings in my 10-year HVAC career, this was by far the most valuable investment of my time. The sacrifice was substantial, but the return over my career will far exceed the forfeit. Not only was the material extremely valuable to learn, but also learning the delivery technique of the best presenter of technical HVAC I have witnessed may ultimately be of the greatest value."

Peter Shreffler • Insight Partners
Masters of HVAC Graduate

WEEK 1: AIRSIDE FUNDAMENTALS 1

LOAD DESIGN <50%>

1) Human Comfort

2) Cooling Load Estimation

3) Psychrometrics Analysis

4) Heating Load Estimation

5) Computerized Load Analysis

PURPOSE: A solid understanding of Load Design is necessary to fully appreciate the practical aspects of HVAC systems. Very few engineers perform extensive manual load designs, and yet no one should ask a computer program to calculate something that they do not thoroughly understand.

PSYCHROMETRICS <50%>

1) Full Load Psychrometrics

2) Part Load Psychrometrics

PURPOSE: The primary knowledge that comes out of this seminar is a greatly improved "system" understanding. While very few engineers will ever need to do complex psychrometric analysis by hand, it is imperative that they understand psychrometrics well enough to verify computer program results and even predict which systems will perform better than others.

> *"This class is important because it really helps no matter where you are on the spectrum of knowledge. This is information that you can carry with you throughout your career, regardless of where you go. It's something that you can bring to your customers and engineers so that they can see you as a valued resource."*
>
> **Leo Drew, MPSW, Sales Engineer**
> **Phoenix, AZ**

WEEK 2: AIRSIDE FUNDAMENTALS 2: AIRSIDE DISTRIBUTION

DUCT DESIGN <45%>

1) Pressure Variations in a Duct System

2) Equal Friction Duct Design

3) Static Regain Duct Design

4) Practical Duct Layout Guidelines

PURPOSE: Duct Design is intended to give students a better understanding of what happens to air as it moves through a duct system. They will learn how certain design variables affect the overall losses. The course will help a designer know when to use one design over the other and how best to optimize each design for the particular application.

FANS & FAN LAWS <45%>

1) Definitions

2) Concepts

3) Fan Types

4) Fan Laws

5) Fan Modulation Methods

PURPOSE: Fans & Fan Laws is intended to give students a better understanding of how a fan works and which fan works best for each application. It will help students learn how to diagnose problem jobs as well as to improve the overall efficiency of a new design. They will learn how certain design variables such as size, RPM, type, and class affect the overall efficiency and acoustical performance of a particular fan. Most importantly, students will learn how to use the fan laws to make important changes to existing fan systems.

ACOUSTICS <10%>

1) Concepts / Terminology

2) Acoustic Rules of Thumb

3) Effectiveness of a Sound Barrier

4) Why Humans Hear Differently Than a Microphone

5) How to Do a Sound Map

6) How to Calculate Influence of Background Noise

PURPOSE: Acoustics is one of the least understood aspects of HVAC design. This course lays a practical foundation that allows students to handle a majority of acoustical problems they are likely to face. On existing problem jobs, students will learn the most cost-effective ways to reduce sound levels. On a new job, they will learn how best to design the proper acoustical levels upfront.

> *"We have seen some real value in the AAON Masters of HVAC training program. Our attendees have come back with a much better understanding of load design and psychrometrics. The gentleman teaching the course does a great job explaining the why and how behind scenes. The level of detail they are getting into is greatly beneficial, especially for guys who have HVAC experience, but are not degreed mechanical engineers. I will definitely be sending more of my sales personnel as well as inside people to the next session."*
>
> **Buck Nye**
> **President, H.C. Nye Co.**

WEEK 3: REFRIGERATION FUNDAMENTALS

BASIC REFRIGERATION <45%>

1) Basic Components

2) P-H Diagram (Pressure vs. Enthalpy)

3) P-V Diagram (Pressure vs. Volume)

4) Effects of SST and SCT on Capacity

5) Effects on Subcooling and Superheat on Capacity

6) Effects on Pressure Drops

PURPOSE: Basic Refrigeration helps students understand the basic components and control schemes of a mechanical refrigeration system and how they work together. Students will learn how certain design and application variables affect the overall capacity and efficiency of the Mechanical Refrigeration System.

REFRIGERATION PIPING <45%>

1) Refrigerant Piping Requirements

2) Suction Line

3) Discharge Line

4) Liquid Line

5) Hot Gas Bypass Line

PURPOSE: Refrigeration Piping is a very practical, step-by-step procedure that prepares students to design future refrigerant piping systems as well as troubleshoot existing systems for problems that cause ineffective operation or even premature failure of the compressor.

REFRIGERATION AND OUR ENVIRONMENT <10%>

1) History of CFCs

2) Montreal Protocol

3) Current Legislation

4) The Future of Mechanical Refrigeration

PURPOSE: Refrigeration and Our Environment helps you to understand how significantly the 1987 Montreal Protocol changed our industry. This section helps students better understand where we have come from and where we are heading in regard to legislation related to both Ozone Depletion and Global Warming.

> *"In our industry, there is a lot of technical things that you might need to know. And college does a good time preparing you for how to learn. But it might not be good at teaching you all the technical aspects of it. So coming here and being able to learn from Joe; you're really going to get into the nitty gritty things that you're actually going to use in this industry."*
>
> ***Alex Larson, DMG, Sales Engineer, Orange, CA***

WEEK 4: SYSTEM FUNDAMENTALS

INTRODUCTION TO HVAC SYSTEMS <30%>

1) Dissecting HVAC Systems

2) Direct Expansion (DX) vs. Chilled Water Systems

3) Common HVAC Systems Types: CVVT and VVCT

COMMERCIAL BUILDING PRESSURIZATION <15%>

1) Why Control Building Pressure

2) System Configurations

IMPROVING DEHUMIDIFICATION <30%>

1) Full Load vs. Part Load Dehumidification Performance

2) Ways to Improve Dehumidification

ICE STORAGE + LOW TEMP AIR SYSTEMS <25%>

1) Ice Storage

2) Low Temperature Air

PURPOSE: The majority of buildings designed in North America have equipment and systems intended to meet a full load design condition, and yet the majority of hours that these buildings operate are somewhere between 40-75% part load condition. With the "systems-level" knowledge that students will gain from this course, they will be able to design future systems and troubleshoot existing ones that will best balance the overall requirements at both full load and most part load conditions. Students will also learn many strategies to greatly improve the amount of moisture systems will remove from the air – leaving the occupants considerably more comfortable during most part load conditions.

WEEK 5: PRODUCT FUNDAMENTALS

AIR HANDLERS <20%>

FAN COILS <10%>

UV <20%>

WSHP <20%>

RTU <20%>

CHILLERS <10%>

PURPOSE: This training will help students understand the basic subcomponents that make up each of the products detailed above. We will discuss various design parameters that need to be considered when applying this type of equipment. Throughout this course, we will regularly discuss the "first cost" vs. "operating costs" ramifications of each possible choice.

> *"Best HVAC training I have been a part of. I wish I could have gone through this class from day 1 on the job. It will lay the foundation for a successful career. Having the fundamental knowledge and training will allow you to continually improve your understanding of the vast technology and equipment being used and constantly improved in our industry."*
>
> **Blake Forsythe • Hobbs & Associates**
> **Masters of HVAC Graduate**

WEEK 6: ENERGY EFFICIENT DESIGN STRATEGIES

INTRO, PARADIGMS, AND WHY COMFORT <10%>

COMMERCIAL BUILDING PRESSURIZATION <90%>

1) Airside Strategies

2) Chiller Strategies

3) System Control Strategies

4) Energy Recovery Strategies

PURPOSE: The majority of buildings designed over the past several decades have HVAC mechanical systems optimized using rules of thumb that were optimal in 1937. On average, these buildings could be using 10%-30% less HVAC energy if the designers were more aware of powerful paradigm shifts that have taken place since the 1980s. Design engineers who attends this course will be given a number of effective strategies that will dramatically improve their very next design. Technicians will learn dozens of ways to improve the overall efficiency

"We have had great success with Joe Becker training our sales teams. Joe's thirty plus years of experience, make Joe uniquely qualified to provide a valuable educational experience for our sales teams. I highly recommend the AAON Masters of HVAC Training program for developing both your new sales engineers and inside sales teams, as well as those in your organization with one to five years of experience."

Jerry Braun • CEO, Texas AirSystems

"Our team members returned from Week One excited about the program and very complimentary with regards to arrangements, content, quality of instruction, and the amount of executive attention. They just returned yesterday from Week Two and are even more excited that they have the opportunity to advance their education and experience via this program. The value proposition is there, and we will be taking advantage of the program again next year to help build our peoples' future as you know, will help AAON and Masters with our futures."

Mike Pawelski • Principal/CEO, Masters Building Solutions

MASTERS OF HVAC

AAON

Sign Up Today!