

## Prerequisites and Associated Notes on the ACCA Residential EPIC Training Class

### PREREQUISITES FOR EPIC TRAINING

#### Attendee Skill Set Prerequisites

The principle intention of EPIC class instruction is to ‘train the trainers’ so that these persons can subsequently serve as *Instructors* for *Entry Students* learning the ACCA HVAC design process. In this regard, *EPIC Attendees* already need to have considerable exposure and familiarity with HVAC design procedures. This implies a working knowledge or expertise in:

- Undertaking a load calculation (e.g., Manual J; possible a prior Seventh Edition practitioner),
- using expanded OEM performance data for cooling equipment and heat pumps; drawing balance point diagrams for heat pumps; reading/using blower tables (e.g., Manual S procedures),
- performing duct sizing calculations (e.g., Manual D) for constant volume systems including the use of duct sizing slide rules,
- using supply air outlet tables to select and size supply air hardware (e.g., Manual T),
- various forms of operating and safety controls,

... and perhaps have successfully used this information to design HVAC systems for real-world dwellings or class room simulations.

*EPIC Attendees* not having the above exposures will find it challenging to assimilate the information that will be addressed in the 3.5-day class. Simple participation in the class will not make the *EPIC Attendee* an instructor:

- The first requirement for teaching a subject is to master the subject (see the definition below for *Instructor*).
  - The in-class mission of the EPIC course is to expose the *EPIC Attendee* to the methods and procedures that appear in the latest versions of the ACCA manuals; and to discuss these procedures, and any related issues and controversies.
  - The after-class mission of the EPIC course is to encourage the *EPIC Attendee* to process, master and apply the information presented in class. This is facilitated by a take-home test. [Those passing the take-home test will be recognized as ACCA Instructors and will have the option to present ACCA Certificates of Completions to their subsequent students.]
  - *Instructor* proficiency depends on the individual’s ability to master the EPIC material and the ability to parse this material for a successful class room presentation.
- The content of subsequent classroom training depends on the skills and needs of the *Entry Student*, and on the class room format (a series of class room meetings, or a seminar). The *Instructor* shall develop lesson plans and exhibits that are compatible with the purpose of those classes.

#### Computer Prerequisites

Each *EPIC Attendee* shall bring a laptop computer to class. This computer shall be equipped with Windows software. The individual shall be able to execute these tasks.

- Copy files from a flash drive to the laptop drive.
- Load an Excel template
- Have rudimental understandings to manipulate an Excel spreadsheet.
- Load and manipulate a Word file.

### **Teaching Prerequisites**

EPIC training focuses on technical competence. There is no requirement for prior teaching experience:

- Many prior *EPIC Attendees* have never been in front of a class and may never be in front of a class.
- The theory and techniques of teaching are not discussed during the EPIC class because ACCA is not qualified and accredited to provide such training. And, there is no time for such discussions.

Obviously, it can be helpful if the *EPIC Attendee* had previously taught this type of HVAC information as an instructor.

### **Software Prerequisites**

Prior experience with software that performs residential system design calculations is not required. The EPIC class focuses on understanding the principles and procedures in the ACCA Manuals. [Understanding is a prerequisite for correct use of software, especially as this knowledge relates to understanding the effects of fixed and adjustable defaults that are embedded in software products (i.e., if the preset default is incorrect for the application, the software solution may not be correct.)]

## **COMMENTARY ON THIRD PARTY SOFTWARE FOR HVAC SYSTEM DESIGNS**

The EPIC Training does not deal with the merits, deficiencies or use of any third-party software product; whether recognized by ACCA (i.e., authorized to display the ACCA “powered by...” logo) or not.

- Rules for software use are peculiar to a particular software product, and are not in any way related to the principles and procedures that form the content of the ACCA manuals. [Understanding how to use a software product is not equivalent to understanding ACCA design procedures and related issues.]
- The industry is well past the point where design calculations can be performed by hand. Student curriculum requires HVAC system design issues training, and use of software training. These are separate, but related tasks. Again, the EPIC class will not be focused on the software aspects.
- Use of ACCA-ANSI MJ8 software is mandatory for real world applications because the procedure cannot reasonable be performed by hand. [The abridged version of Manual J is not an ANSI procedure and does not deal with issues that commonly affect the performance of most modern homes.]
- Manual S procedures, Manual D procedures, etc. can be done by hand, but this is not practical because of process time and exposure to routine mathematical errors.
- Wrightsoft, Elite, ADTEC, NITEK, and the Florida Solar Energy Center are the only third-party software providers currently recognized by ACCA:
  - Design procedure suites (J/D/S) are sold by Wrightsoft and Elite.
  - ADTEC and NITEK provide MJ8 software.

- The Florida Solar Energy Center provides a Florida-only version of MJ8 software. In addition, ACCA provides a free MJ8-AE spreadsheet and soon a Manual D (3<sup>rd</sup> Edition) spreadsheet. Both spreadsheets are automated and user friendly. However, again, the MJ8-AE approach is not the full ACCA-ANSI procedure.
- ACCA is positioned to respond to questions regarding ACCA manual content. Software houses shall answer questions about their software products and proper use of same.
- The instructor shall decide if software training will be part of the curriculum, and if it is part of the course of study, the instructor shall select the software products and learn how to use these products in a manner that is compatible with the intent of the procedures in the ACCA manuals.

### DEFINITIONS (as used above)

**EPIC Attendee** – A person that is or wants to be an HVAC system design instructor (see ‘instructor’ below), or wants to be a better HVAC system designer, or wants to become a more competent scrutinizer of HVAC systems (i.e., a code official, energy rater, house doctor, etc.).

**Expanded Equipment Performance Data** – Tables that correlate sensible and latent cooling capacity (Btuh) with blower Cfm, outdoor dry-bulb temperature (or condenser water temperature), entering air wet-bulb temperature and entering air dry-bulb temperature.

**Instructor** – A person that fully understands HVAC system design issues and procedures; who can apply design procedures to actual dwellings; who can selectively parse, repackage and present this information to students that have little or no experience with such procedures and calculations. In this regard, ‘entry student’ progress depends on the format of the presentation.

- The presentation may be a series of classroom meetings with homework, discussion, feed back and drills. The student is an active participant that masters the subject material during the time frame of the meetings.
- A seminar identifies issues, discusses what needs to be done, and shows how to perform selected tasks. The student is a relatively passive participant that is exposed to material that must be personally investigated and mastered at a later time (an EPIC student, for example).

**Entry Student** – A person that has little or no experience with HVAC procedures and calculations, or a person who has been partially informed or misinformed about certain aspects of design procedures, concepts and calculations.