Carrier
Turn to the Experts.


# TDP Catalog

# Technical Development Program

TDPs provide you with new technical training materials designed to help your contractors, engineers, and designers to effectively design, specify, sell, and apply HVAC equipment in commercial applications. Each of these new programs consists of a CD that contains a PowerPoint™ presentation and instructor notes that you can use to present a class, typically three hours per topic. The presentation contains animations where appropriate and hyperlinks to the various segments to assist you in hosting a professional training session. High quality graphics and photos are used in all presentations, and video clips are used in some programs to demonstrate more complex topics. Other instructor features include a convenient link to the book, charts, and tables or other supplementary material.

Additionally, books are available to use in your sessions or to hand out for self-study. Each full-color book clearly covers the topic and enhances the learning experience through state-of-the-art graphics and detailed photographs.

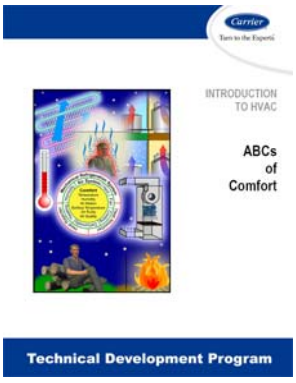

## NEW! TDP-101 Industry Overview…

This TDP provides a general overview of the commercial HVAC industry, providing an awareness of: the design process; participants in the design and construction process; documents involved in construction; a typical timeline of activities in the design and construction process; and how these activities are influenced by the different participants in the process. This industry is also influenced by regulatory agencies and legal concerns that are important to designers of HVAC systems.

Book (single)..... Catalog No: 796-025..... Price: ~~$16.25~~ $13.00

Book (10-pack) ..... Catalog No: 796-025-10..... Price: ~~$82.00~~ $65.60

PowerPoint..... Catalog No: 797-025..... Price: ~~$185.00~~ $148.00




## TDP-102 ABCs of Comfort…

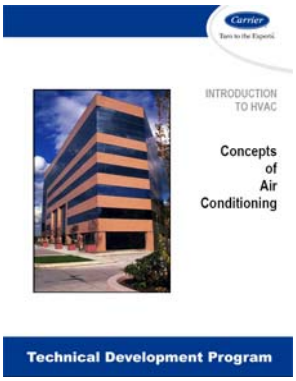
The Carrier TDP modules deal primarily with the design and operation of comfort air conditioning. To design these comfort air conditioning systems, it is first necessary to understand what comfort is, and how a system designer can influence the human perception of comfort. The "ABCs of Comfort" is a module of the introductory series and is intended to introduce system designers to the parameters that influence human comfort, and how the air system and mechanical refrigeration system work together to control these conditions. The material presented helps the designers determine one of the first objectives of the system design, which is to establish the comfort standards for the project.

Book (single).....Catalog No: 796-026.....Price: ~~$16.25~~ $13.00

Book (10-pack) .....Catalog No: 796-026-10.....Price: ~~$82.00~~ $65.60

PowerPoint.....Catalog No: 797-026.....Price: ~~$185.00~~ $148.00

# Technical Development Program



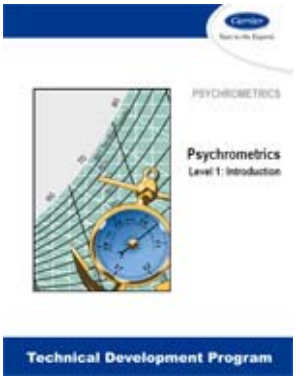

## TDP-103 Concepts of Air Conditioning…

This module deals with the functions an air-conditioning system must perform to provide comfort air conditioning. Elementary air-conditioning definitions are explained and the fundamental classification of systems is described. The types of systems, with their components and how they control multiple building zones are discussed. It is intended for people new to the industry or who may not be familiar with the many types of HVAC systems available. At the end of this module, a novice should have a general understanding of air-conditioning systems and how they deal with building zoning considerations.

Book (single)..... Catalog No: 796-027 ..... Price: ~~$16.25~~ $13.00

Book (10-pack) ..... Catalog No: 796-027-10 ..... Price: ~~$82.00~~ $65.60

PowerPoint .....Catalog No: 797-027..... Price: ~~$185.00~~ $148.00




## TDP-201 Psychrometrics Level 1: Introduction…

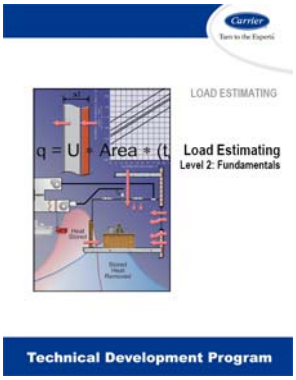
Psychrometrics is the study of the air and water vapor mixture. Proficiency in the use of the psychrometrics chart is an important tool for designers of air conditioning systems. Psychrometrics is required to properly calculate heating and cooling loads, select equipment, and design air distribution systems. While the topic is not complicated, it involves a number of formulas and their application; the psychrometric chart is useful in simplifying the calculations. This module is the first of four, an introduction to air-vapor mixtures, the information obtained from the chart, and plotting the eight basic air conditioning processes. Other modules build on the information from this module to explain the psychrometrics of various air conditioning systems, analysis of part load and control methods, computerized psychrometrics, and the theory used to develop the chart.

Book (single).....Catalog No: 796-030.....Price: ~~$18.00~~ $14.50

Book (10-pack) .....Catalog No: 796-030-10.....Price: ~~$90.00~~ $72.00

PowerPoint.....Catalog No: 797-030.....Price: ~~$185.00~~ $148.00

# Technical Development Program



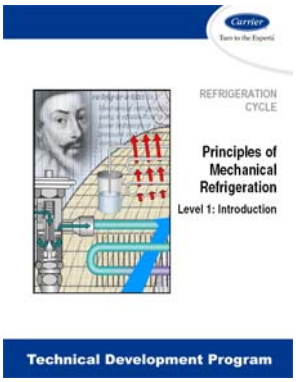

## TDP-301 Load Estimating Level 2: Fundamentals…

The fundamentals of commercial load estimating are needed to understand the various load components that go into making a practical estimate of the amount of heating and/or cooling energy needed to condition a building. Done properly, a load estimate provides the data necessary to select heating and cooling equipment that can condition the occupied spaces within a building. In the earliest stages, the load estimate will tell the designer how big the job is, either in terms of cooling capacity, expressed as tons of refrigeration, or in terms of airflow cfm. If the characteristics of the loads for the building and the HVAC system are known, then an analysis of the application can be used to come up with the correct load and equipment selections to complete the design. Along with psychrometrics, load estimating establishes the foundation upon which HVAC system design and operation occur.

Book (single).....Catalog No: 796-034.....Price: ~~$16.25~~ $13.00

Book (10-pack) .....Catalog No: 796-034-10.....Price: ~~$82.00~~ $65.50

PowerPoint.....Catalog No: 797-034.....Price: ~~$185.00~~ $148.00




## TDP-400 Principles of Mechanical Refrigeration…

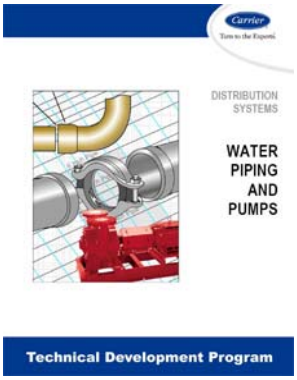
Air conditioning is all about moving heat energy, by either adding or removing it from one place and moving it to another. This module deals with the way heat is moved from a place of lower temperature to a place of higher temperature in a process called mechanical refrigeration. This process is used in preserving the food we eat and for comfort air conditioning. Much of the equipment discussed in other TDP modules dealing with equipment uses the principles discussed in this module. A designer needs a thorough understanding of the concepts of mechanical refrigeration to create the best performing and cost effective projects. The Principles of Mechanical Refrigeration is divided into two books, Level 1, Introduction, and Level 2, Analysis. Before proceeding to the equipment TDPs, the information in the Level 1 Introductory material should be understood. Level 2, Analysis, will provide a better understanding of how to evaluate unit performance and select refrigeration components. Several other TDP modules pick up where this one leaves off on other specific topics related to mechanical refrigeration, a list is included at the back of this book.

Book (single).....Catalog No: 796-037.....Price: ~~$15.00~~ $12.00

Book (10-pack) .....Catalog No: 796-037-10.....Price: ~~$75.00~~ $60.00

PowerPoint.....Catalog No: 797-037.....Price: ~~$185.00~~ $148.00

# Technical Development Program



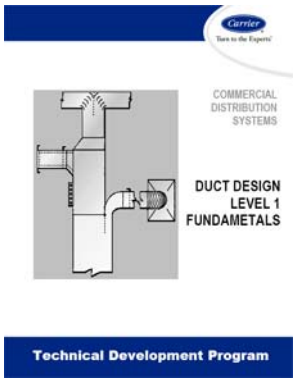

## TDP-502 Water Piping and Pumps…

Water piping and pumping is a foundation topic of HVAC design. The correct layout, selection, and sizing of the piping system and associated hydronic components is required to properly deliver chilled and hot water as required to maintain comfort conditions.

Book (single) .....Catalog No: 796-043..... Price: ~~$16.25~~ $13.00

Book (10-pack).....Catalog No: 796-043-10..... Price: ~~$82.00~~ $65.60

PowerPoint .....Catalog No: 797-043..... Price: ~~$185.00~~ $148.00




## TDP-504 Duct Design Level 1: Fundamentals…

This module will look at the way commercial duct design creates an airflow conduit for interconnecting an air handler, VAV, and CV terminals, and room air distribution devices as a means of delivering conditioned air to the occupants of a building. A step-by-step design process will be presented covering such aspects of duct design as zoning, load determination, layout, sizing, and determining static pressure losses for system fan selection. After completing the module, participants will be able to manually size ductwork using either a friction chart or a duct calculator.

Book (single) .....Catalog No: 796-045 .....Price: ~~$16.25~~ $13.00

Book (10-pack) .....Catalog No: 796-045-10.....Price: ~~$82.00~~ $65.60

PowerPoint.....Catalog No: 797-045 .....Price: ~~$185.00~~ $148.00


## TDP-611 Central Station Air Handlers…

Air handlers do not just handle air. They also cool, heat, filter, and humidify. Central station air handlers are typically "built to order" with a wide variety of available options and accessories to choose from. Central station air handlers are available factory designed for indoor use or for rooftop mounting. This TDP module will explain the types of equipment and the sectional components that comprise an air handler, both indoor and outdoor types, discuss the best applications served by central station air handling units and why, as well as the software programs used for selection.

Book (single).....Catalog No: 796-049 ..... Price: ~~$16.25~~ $13.00

Book (10-pack) .....Catalog No: 796-049-10..... Price: ~~$82.00~~ $65.60

PowerPoint.....Catalog No: 797-049..... Price: ~~$185.00~~ $148.00

# Technical Development Program


## TDP-612 Fans: Features and Analysis…

The heart of any air handling system is the fan. Fans consume more energy in a typical HVAC system than the compressors! It is extremely important that the correct type of fan be chosen for the application. This TDP module will describe fan characteristics and performance, in order to provide designers with the knowledge to select the proper fan for various HVAC applications.

Book (single) ..... Catalog No: 796-050 ..... Price: ~~$15.00~~ $12.00

Book (10-pack) ..... Catalog No: 796-050-10 ..... Price: ~~$75.00~~ $60.00

PowerPoint ..... Catalog No: 797-050 ..... Price: ~~$185.00~~ $148.00

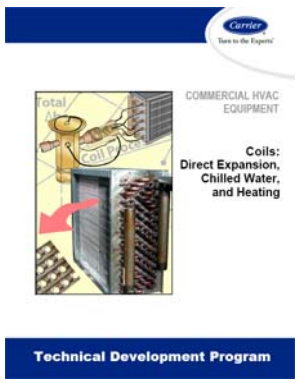

## TDP-613 Fans in Variable Air Volume Systems...

Heat rejection is a process that is central to the air conditioning. The heat is rejected to the environment using air or water as the medium. This TDP module discusses the most common heat rejection methods: condensers and cooling towers. In order to apply systems to a design, HVAC designers must be aware of the different heat rejection methods. This TDP we discuss total heat of rejection, it's derivation, and how it applies to the process of air conditioning, as well as the controls that may be used to regulate each.

Book (single) ..... Catalog No: 796-051 ..... Price: ~~$15.00~~ $12.00

Book (10-pack) ..... Catalog No: 796-051-10 ..... Price: ~~$75.00~~ $60.00

PowerPoint ..... Catalog No: 797-051 ..... Price: ~~$185.00~~ $148.00




## NEW! TDP-614 Coils: DX, Chilled Water and Heating...

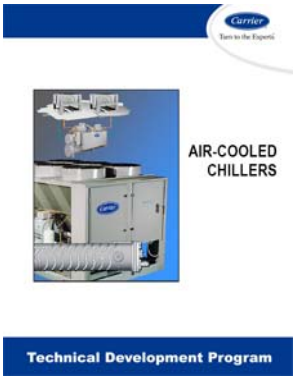
There are many coil applications used in HVAC design. They range from small residential sizes to large built-up coil banks in custom air-handling units. Regardless of their size, all coils serve the important function of changing the temperature of the air to satisfy comfort or process requirements. There are two main categories of coils, heating or cooling. Heating coils use electricity, hot water, or refrigerant hot gas as a heating medium. Cooling coils use direct expansion (cold refrigerant) or chilled water. In this TDP, a design engineer will learn about the components, features, and applications for direct expansion and chilled-water cooling, and hot water, steam, and electric heating coils. With an understanding of these items, the design engineer can proceed with confidence to perform a proper coil selection and prepare a specification.

Book (single) ..... Catalog No: 06-796-052 ..... Price: ~~$18.00~~ $14.50

Book (10-pack) ..... Catalog No: 06-796-052-10 ..... Price: ~~$90.00~~ $72.00

PowerPoint ..... Catalog No: 06-796-052 ..... Price: ~~$185.00~~ $148.00

# Technical Development Program



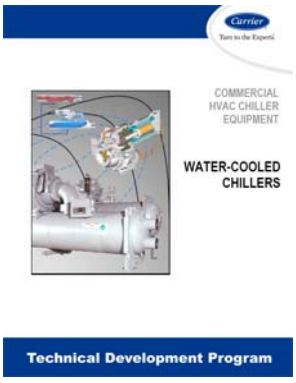

## TDP-622 Air-Cooled Chillers…

Air-cooled chillers can be used as a single piece unit or a split in various configurations. This flexibility has contributed to their overall popularity among designers of chilled-water systems. Air-cooled chillers range in size from small capacity models to several hundred-ton models that are utilized to cool large commercial buildings. This TDP module will cover both packaged single piece air-cooled chillers as well as split system types. This TDP module will also cover the available options and accessories for air-cooled chillers, as well as criteria for selecting an air-cooled chiller.

Book (single).....Catalog No: 796-054.....Price: ~~$15.00~~ $12.00

Book (10-pack) .....Catalog No: 796-054-10.....Price: ~~$75.00~~ $60.00

PowerPoint.....Catalog No: 797-054.....Price: ~~$185.00~~ $148.00




## TDP-623 Water-Cooled Chillers…

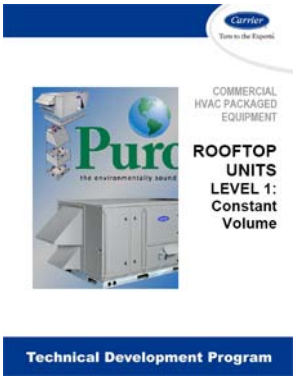
Water-cooled chillers range in size from small 20-ton capacity models that can fit in an elevator to several thousand-ton models that cool the world's largest facilities such as airports, shopping centers, skyscrapers, and other facilities. This TDP module will concentrate on the larger chillers in the range of 200 ton and upward. We will cover both screw and centrifugal type compressor water-cooled chillers, as they tend to be the most popular designs for larger commercial applications. This TDP will also discuss the options and accessories available for water-cooled chillers and the criteria used when selecting a water-cooled chiller.

Book (single).....Catalog No: 796-055 .....Price: ~~$16.25~~ $13.00

Book (10-pack) .....Catalog No: 796-055-10.....Price: ~~$82.00~~ $65.60

PowerPoint.....Catalog No: 797-055.....Price: ~~$185.00~~ $148.00

# Technical Development Program




## TDP-631 Rooftop Units Level 1: Constant Volume...

Smaller tonnage constant volume rooftop units are the most widely used units in the commercial air conditioning industry. They are produced by the tens of thousands by the major manufacturers and are applied to a wide cross section of installations, ranging from strip malls to schools and offices. Their key features and applications are the focus of the material in this TDP module.

Book (single) ..... Catalog No: 796-056 ..... Price: ~~$18.00~~ $14.50

Book (10-pack) ..... Catalog No: 796-056-10..... Price: ~~$90.00~~ $72.00

PowerPoint ..... Catalog No: 797-056 ..... Price: ~~$185.00~~ $148.00


## TDP-634 Split Systems...

Spilt systems are one of the major categories of HVAC equipment, and the primary system type used in residential air conditioning. Split systems are classified as a unitary, or packaged unit; and, as such, have many of the benefits of packaged equipment while offering the flexibility associated with applied products. This module will describe what split systems are, the components of the system and accessories frequently used. It will show the designer how systems are applied, explain common installation issues, and describe how to select a system.

Book (single) ..... Catalog No: 796-059 ..... Price: ~~$16.25~~ $13.00

Book (10-pack) ..... Catalog No: 796-059-10..... Price: ~~$82.00~~ $65.60

PowerPoint..... Catalog No: 797-059..... Price: ~~$185.00~~ $148.00


## TDP-641 Cooling Towers and Condensers...

Heat rejection is a process that is central to the air conditioning. The heat is rejected to the environment using air or water as the medium. This TDP module discusses the most common heat rejection methods: condensers and cooling towers. In order to apply systems to a design, HVAC designers must be aware of the different heat rejection methods. This TDP we discuss total heat of rejection, it's derivation, and how it applies to the process of air conditioning, as well as the controls that may be used to regulate each.

Book (single)..... Catalog No: 796-060 ..... Price: ~~$16.25~~ $13.00

Book (10-pack) ..... Catalog No: 796-060-10 ..... Price: ~~$82.00~~ $65.60

PowerPoint..... Catalog No: 797-060..... Price: ~~$185.00~~ $148.00

# Technical Development Program


## NEW! TDP-701 System Selection…

System selection can be a simpler, more understandable, process if the designer and owner follow a step-by-step procedure. This TDP on System Selection presents one method that can be used by designers on most commercial projects. We will begin by assembling and documenting all available project data at the earlier phases of the design process. After determining the delivery method, budgets and schedules, and running rough heating and cooling loads for our zoned project, an initial list of potential HVAC systems will be assembled. This list will be reviewed against various design criteria that were determined for the project. The final two or three HVAC systems will be evaluated against a prioritized list of design criteria using a rating method called the Systems Scoresheet. The system with the highest numerical rating, once approved, will then be designed and built. Throughout the selection and design processes, job requirements and system parameters are documented on the Design Record form presented in the TDP.

Book (single).....Catalog No: 06-796-066.....Price: ~~$22.50~~ $18.00

Book (10-pack) .....Catalog No: 06-796-066-10.....Price: ~~$110.00~~ $88.00

PowerPoint.....Catalog No: 06-797-066.....Price: ~~$185.00~~ $148.00


## NEW! TDP-702 Comfort Control Principles…

Air-conditioning systems maintain the desired indoor comfort level, starting with space temperature. Other comfort parameters include maintaining acceptable room humidity, air motion, air quality, and air purity. The relative importance of each system function depends upon the specific project and application. Zoning is required to maximize the number of spaces that are successfully conditioned to the design criteria. There are many different types of HVAC systems, and many more elements that can be used to achieve the heating and cooling capacity, provide ventilation, maintain humidity, distribute the air within the spaces, etc. This module will discuss various temperature control strategies and HVAC systems that can be employed to maximize comfort provided to the building occupants.

Book (single)..... Catalog No: 06-796-067 ..... Price: ~~$15.00~~ $12.00

Book (10-pack) .....Catalog No: 06-796-067-10....Price: ~~$75.00~~ $60.00

PowerPoint.....Catalog No: 06-797-067.....Price: ~~$185.00~~ $148.00

# Technical Development Program


## TDP-704 VVT Systems…

VVT is an economical, all-air zoned system that is ideal for many commercial jobs, especially at a time when there is so much design emphasis being placed on high-quality air treatment, outdoor air ventilation, and room air circulation. VVT systems are a popular solution for heating and cooling multiple zone applications in small to medium size buildings. VVT controls typically are supplied pre-packaged from the HVAC equipment supplier and are ready to install by the mechanical contractor. The objective of this module is to define VVT and describe how it achieves zone temperature control.

Book (single)..... Catalog No: 796-069 ..... Price: ~~$15.00~~ $12.00

Book (10-pack) ..... Catalog No: 796-069-10..... Price: ~~$75.00~~ $60.00

PowerPoint..... Catalog No: 797-069..... Price: ~~$185.00~~ $148.00


## TDP-801 Controls Level 1: Fundamentals…

The fundamentals of HVAC controls introduces the basic concepts of control and the vocabulary necessary to understand HVAC controls that are part of the design of HVAC systems. This TDP will take the basic elements and building blocks of HVAC controls and show how comfort control systems create the desired equipment responses for maintaining room environmental condition set points.

Book (single)..... Catalog No: 796-074 ..... Price: ~~$15.00~~ $12.00

Book (10-pack) ..... Catalog No: 796-074-10 ..... Price: ~~$75.00~~ $60.00

PowerPoint ..... Catalog No: 797-074 ..... Price: ~~$185.00~~ $148.00

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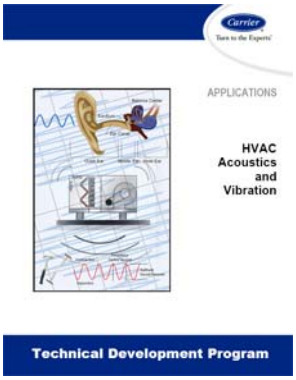


## NEW! TDP-901 Acoustics and Vibration…

Acoustic considerations for project designs are often overlooked. When overlooked, these issues result in noise issues that can be more expensive than if acoustic design were considered in project development. This TDP introduces system designers to the principles of acoustics and includes suggestions on how to address acoustic issues early in design. An approach is also presented on how to address an existing project with noise issues. Understanding acoustic design principles will help designers select and apply equipment and design distribution systems that more cost effectively meet the project's total environmental quality (TEQ) goals. This module has seven sections. The first explains acoustic terms and how to add and subtract sound levels. The second section discusses the methods used to establish an acoustic rating both indoors and outdoors, including how manufacturer sound data is generated. The next two sections describe how to determine the acoustic design goal and how to estimate the sound at the receiver using the source-path-receiver concept. Specific guidelines are provided on how to estimate the sound at the equipment to control noise. The next section discusses troubleshooting existing projects, followed by controlling vibration at the design stage. Finally, guidelines are provided for preparing acoustic specifications.

Book (single).....Catalog No: 06-796-076.....Price: ~~$22.50~~ $18.00

Book (10-pack) .....Catalog No: 06-796-076-10.....Price: ~~$110.00~~ $88.00

PowerPoint.....Catalog No: 06-797-076.....Price: ~~$185.00~~ $148.00


## NEW! TDP-903 Life Cycle Costing for HVAC System…

Decisions about the type of HVAC system or decisions related to making HVAC system modifications are based of financial justification. The federal government, sustainable design projects and many other entities require that these decision be based the total life cycle costs rather that first cost alone. The life cycle costing method is one of the most commonly used decision making methods of determining total life cycle financial impact. This training module discusses the life cycle costing method and how it should be applied to HVAC related decisions. Material is divided into six sections. These sections describe the basic concepts behind the life cycle cost method, a recommended procedure to follow, what data should be included, where to find the data and several techniques to be used in evaluating the data and making a decision. Also covered are payback and several other decision-making tools. This material can equally be applied to public or privately funded projects with certain guidelines. This module will explain these guidelines and demonstrate a life cycle costing software program.

Book (single).....Catalog No: 06-796-078.....Price: ~~$22.50~~ $18.00

Book (10-pack) .....Catalog No: 06-796-078-10.....Price: ~~$110.00~~ $88.00

PowerPoint.....Catalog No: 06-797-078.....Price: ~~$185.00~~ $148.00

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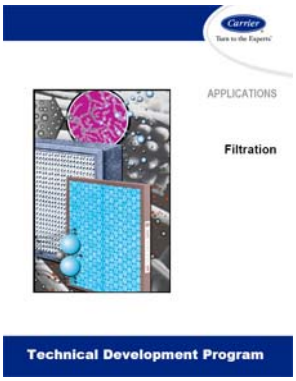


NEW!

## TDP-909 Filtration…

The methods and products available for removing contaminants from the air is the focus of this TDP module. Filtration is one part of a good IAQ strategy and is used to manage the indoor environment. Specifically, the types of mechanical and gas-phase filters used in comfort air-conditioning applications along with electronic air cleaners are covered. Upon completion of this module, the reader should have an understanding of the types of filters available, their capabilities, and applications.

Book (single)..... Catalog No: 06-796-063 ..... Price: ~~$16.25~~ $13.00

Book (10-pack) ..... Catalog No: 06-796-063-10 ..... Price: ~~$82.00~~ $65.60

PowerPoint..... Catalog No: 06-797-063 ..... Price: ~~$185.00~~ $148.00

## TDP Samplers

TDP Samplers are a compilation of selected TDPs organized in a binder. See various Sampler packages below.

### Binder I

- ABCs of Comfort
- Concepts of Air Conditioning
- Psychrometrics Level 1: Introduction
- Load Estimating Level 2: Fundamentals
- Principles of Mechanical Refrigeration
- Duct Design Level 1: Fundamentals
- Fans: Features and Analysis
- Fans in Variable Air Volume Systems

Binder I .... Catalog No: 06-796-100 .....Price: ~~$85.00~~ $68.00

### Binder II

- Water Piping and Pumps
- Central Station Air Handlers
- Air-Cooled Chillers
- Water-Cooled Chillers
- Rooftop Units Level 1: Constant Volume
- Split Systems
- Cooling Towers and Condensers
- Variable Volume and Temperature Systems
- Controls Level 1: Fundamentals

Binder II ..... Catalog No: 06-796-101..... Price: ~~$85.00~~ $68.00

## Coming Soon

- **Water Source Heat Pump Systems**
- **Indoor Air Quality**
- **Energy Recovery**
- **Self-Contained Units**