This manual is not intended as a substitute for the manufacturers’ installation, operation and/or service instructions, which should always be consulted and considered the first and best reference for installing, commissioning and servicing equipment.

This book describes recommended and well established practices for installing and maintaining oilburners, furnaces, boilers, water heaters, and heating oil tanks and piping. Additionally, it describes how venting and chimneys affect the equipment’s operation. However, the “correct” way of doing things may change over time due to new technologies, new research or safety issues that become better understood. Therefore, you must continue your education after reading this book, take continuing education classes and communicate with manufacturers and local authorities regarding changes.

We describe building and installation codes, and we discuss manufacturers’ instructions. Of necessity, each of these is important to install equipment, but unfortunately, the relationships between them are not always synchronized, and therefore, sometimes they appear to conflict.

The book relies on well established model codes. NFPA 31, Standard for the Installation of Oil Burning Equipment, is the predominant model code for oil equipment installations. Many states adopt this code and use it in their jurisdiction. Unfortunately, sometimes it takes time for a jurisdiction to adopt changes that are made to the code; they may use old editions, or may use competing model codes. Additionally, some NFPA changes may occur between editions of this book. Unless your county or state adopts these model codes, they are not “legally” required. However, they generally reflect best practices, and customers will expect that from you. And if you are sued and you have ignored best practices, you will almost certainly lose.

Each state, county, or city may adopt a local building or fire code. Usually these will be based on uniform national codes (NFPA 31), but occasionally there will be variances or changes to suit local problems or issues. Some areas may rely on a different model code than NFPA 31, or their code may not be based on a national model. These codes are the law in the area in which you are working and you must follow them.

Finally, each manufacturer provides instructions on how to install his equipment. The codes generally defer to the manufacturer, and state, but the manufacturer must be specific. For example, if the manufacturer says, “Use a draft regulator if necessary,” and the codebook says, “draft regulators are required,” then you must use a draft regulator. In describing draft regulators, NFPA says they must be used “unless the appliance design, conditions of installation, or combinations thereof preclude excessive chimney draft, or the appliance is listed for use without one.” Thus, NFPA says that a draft regulator must be used unless you can determine that the final installation will not allow excessive draft or the appliance is listed for use without the draft regulator.

—Bob Hedden, Editor-in-Chief

We want to express our deepest gratitude to the following people who spent untold hours checking over the material in this book for accuracy:

Jerry Herron—RW Beckett Corp.
Tom Tubman, Chuck Feldman, Marc Bryden, Walter Hadank, Mark Leclerc, Rich Newberry, Jim Ratcliffe,
Dave Roussayne, and Mike Shayda—Carlin Combustion Technology
John Jones—Delavan Spray Technologies
Chris Jordyn—ICPA (Independent Connecticut Petroleum Assn.)
Roger Mitchell—MODA (Maine Oil Dealers Assn.)
Mike Szentesy and Bill Mitchell—Suntec
Jim Bergmann—Testo
Pete Cullen—Wöhler
Overton “Jay” Young and Dave Levitt—Dixon Fuel

A big thanks goes to:
George Lanthier—Firedragon Enterprises
John Levey—Oilheat Associates
lead writers on many chapters, editors on some.

Editor & Graphic Designer—Mike SanGiovanni, Oilheating Journal
Sue Carver—Industry Publications, layout, proofing, & production
Publisher—Don Farrell, Oilheating Journal

John Huber—President, National Oilheat Research Alliance
On being an Oilheat Technician

This manual is for anyone interested in learning to become an Oilheat Technician. Being an Oilheat Technician is a very challenging profession. Working on oil burners is tougher than plumbing, electrical, air conditioning, copiers or computers. The reasons are the sheer variety of equipment and the conditions we have to work under. There have been over 500 different oil burner manufacturers over the years, and thousands of furnace, water heater, and boiler brands and styles. Each of these unique combinations of burner and boiler, furnace, or water heater operates in a different building with a different venting system and heat distribution system. The bottom line is that there are millions of different configurations we must understand. Add to this the incredibly high degree of customer contact technicians enjoy, and all the skills that implies, and you can see why it is so difficult to learn to become an accomplished Oilheat Technician.

First, you must have pride in yourself, your company, and the Oilheat Industry. You have to have a deep personal need to do a good job, one you can be proud of. The second ingredient is to possess a strong desire to be of service. You have to enjoy helping people. The third element is insatiable curiosity. The only way to keep up with the breathtaking technological improvements and changes in our business is to be a perpetual student, always learning. Finally, it helps if you have a mentor to help you along the way. After years of experience, you should mentor someone else. We hope this manual will give you a starting point in your journey toward excellence.

Dozens of dedicated Oilheat professionals have had a hand in creating and editing it. The book is written by Oilheat Technicians for Oilheat Technicians. The first versions of the book were published in the early 1960’s. This is the seventh, and probably the most ambitious revision of the book.

Disclaimer

This publication is designed to provide accurate and authoritative information in regard to the subject matter covers. It is sold with the understanding that the publisher is not engaged in rendering legal, accounting, or other technical or professional service. If specific legal advice or other technical or professional assistance is required, the services of a competent professional person should be sought.

The editors have made their best effort to be sure the material in the book is accurate. However, any book with as much detail about such a wide range of subjects, and with as many contributors as this text has enjoyed, over as many rewrites and revisions as the text has endured, is bound to have a few mistakes, omissions, and controversial opinions. We all wish to take this opportunity to apologize for any confusion or inconvenience that may result from any of these factors. However, NORA, nor those responsible for the preparation of this Manual, make any representations or guarantee, or assume or accept any responsibility or liability, with respect thereto.

This book is sold without warranty of any kind as to the accuracy of its contents. The reader accepts full responsibility for any consequence arising from the use of this book. In all cases, local codes, and equipment manufacturers’ instructions take precedence over anything we have presented in this book.