

About the Author

Charles “Charlie” Trout began his electrical career in 1941 as an electrician’s helper maintaining diesel electric locomotives for the Pennsylvania Railroad. In 1952, he became a member of Local Union 134 IBEW in Chicago, Illinois, and began work as a journeyman electrician for an electrical contractor.

Charlie has been a member of the International Association of Electrical Inspectors for over 40 years. He has also been a member of the National Electrical Contractors Association (NECA) since 1980 and has sat on its Codes and Standards Committee since 1989. He represented NECA on National Electrical Code Making Panels No. 6 and No. 18 and was Chairman of Code-Making Panel No. 12 for twelve years. In addition, Charlie served as President and CEO of Main Electric Company of Chicago for twenty years and holds an Electrical Contractors License and Supervising Electricians License in Chicago.

Charlie is well known for his classes and seminars for the Supervising Electricians Examination and has written several electrician workbooks. He is the author of NECA 230-2003 *Electric Motors and Motor Controllers*, an American National Standard (ANSI) for selecting, installing, and maintaining electric motors and motor controllers and *Electrical Installation and Inspection*. Charlie is also the author of NECA’s Code Question of the Day, an online resource for questions about the NEC®.

Foreword

Essentials of Electric Motors and Controls is designed as a helpful reference for basic principles of electric motor design and installation procedures. Electrical installers and maintainers and inspection authorities will find this text a comprehensive, yet understandable and easy-to-read handbook for compliance with the *National Electrical Code*[®] (*NEC*).

Essentials of Electric Motors and Controls concentrates on installation, maintenance, and controls of electric motors and lays the groundwork for basic principles of electric motor operational theory and understanding of the reasoning behind *NEC* requirements. The text covers internal construction of common electric motors to the extent necessary for maintenance and repair purposes. Motor controllers and motor control circuits are covered as outlined in the requirements of the *NEC*.

Essentials of Electric Motors and Controls is based on the 2008 edition of the *NEC* and emphasizes those requirements with which professionals are confronted on a daily basis. This book is not intended as a substitute for the *NEC*, and references the *NEC* only to provide clarification of installation requirements. These requirements are intended to provide adequate installation without compromising the practical safeguarding of persons and property as intended by the *NEC*.

Please note that the installation and maintenance of electric motors must be done only by a qualified person, defined in the *NEC* as “one who has the skills and knowledge related to the construction and operation of the electrical equipment and installations and has received safety training to recognize and avoid the hazards involved.” NFPA 70E *Standard for Electrical Safety in the Workplace* provides additional information regarding the definition of a qualified person and provides many safety recommendations for persons working on electric motors.