NEMA Standards Publication

NEMA TCB 2-2012

NEMA Guidelines for the Selection and Installation of Underground Nonmetallic Raceways

National Electrical Manufacturers Association

NEMA TCB 2-2012

NEMA Guidelines for the Selection and Installation of Underground Nonmetallic Raceways

Published by:

National Electrical Manufacturers Association
1300 North 17th Street, Suite 900
Rosslyn, Virginia 22209

www.nema.org

NOTICE AND DISCLAIMER

The information in this publication was considered technically sound by a consensus among persons engaged in its development at the time it was approved. Consensus does not necessarily mean there was unanimous agreement among every person participating in the development process.

The National Electrical Manufacturers Association (NEMA) standards and guideline publications, of which the document herein is one, are developed through a voluntary standards development process. This process brings together volunteers and/or seeks out the views of persons who have an interest in the topic covered by this publication. Although NEMA administers the process and establishes rules to promote fairness in the development of consensus, it does not write the documents, nor does it independently test, evaluate, or verify the accuracy or completeness of any information or the soundness of any judgments contained in its standards and guideline publications.

NEMA disclaims liability for any personal injury, property, or other damages of any nature, whether special, indirect, consequential, or compensatory, directly or indirectly resulting from the publication, use of, application, or reliance on this document. NEMA disclaims and makes no guaranty or warranty, express or implied, as to the accuracy or completeness of any information published herein, and disclaims and makes no warranty that the information in this document will fulfill any particular purpose(s) or need(s). NEMA does not undertake to guarantee the performance of any individual manufacturer's or seller's products or services by virtue of this standard or guide.

In publishing and making this document available, NEMA is not undertaking to render professional or other services for or on behalf of any person or entity, nor is NEMA undertaking to perform any duty owed by any person or entity to someone else. Anyone using this document should rely on his or her own independent judgment or, as appropriate, seek the advice of a competent professional in determining the exercise of reasonable care in any given circumstance. Information and other standards on the topic covered by this publication may be available from other sources, which the user may wish to consult for additional views or information not covered by this publication.

NEMA has no power, nor does it undertake to police or enforce compliance with the contents of this document. NEMA does not certify, test, or inspect products, designs, or installations for safety or health purposes. Any certification or other statement of compliance with any health- or safety-related information in this document shall not be attributable to NEMA and is solely the responsibility of the certifier or maker of the statement.

FOREWORD

This guideline is intended to provide assistance as a guide to obtain the most appropriate and satisfactory installation of rigid nonmetallic conduit (RNC) or raceway systems.

This guideline is in no way intended to assume or replace any responsibilities of engineers, customer representatives, owners, or other persons in establishing engineering design practices and procedures best suited to individual job conditions.

NEMA Polymer Raceway Products Section

Anamet Electrical, Inc.	Mattoon, IL
AFC Cable Systems, a part of Atkore International	New Bedford, MA
Allied Tube and Conduit, a part of Atkore International	Harvey, IL
Champion Fiberglass, Inc.	Spring, TX
FRE Composites	St. André-d'Argenteuil, PQ, Canada
Hubbell Incorporated	Shelton, CT
IPEX Electrical Inc.	Mississauga, ON, Canada
Legrand North America	West Hartford, CT
Panduit Corporation	Tinley Park, IL
Royal Pipe Systems	Shelby Township, MI
Southern Pipe, Inc.	New London, NC
Thomas & Betts Corporation	Memphis, TN
Underground Devices, Inc.	Northbrook, IL
United Fiberglass of America	Springfield, OH

TABLE OF CONTENTS

SCOPE

This guideline covers recommendations for the selection, handling and installation of underground single bore rigid nonmetallic conduit (RNC) or raceway for power, lighting, signaling, and communications applications. For the purposes of this guideline, Rigid nonmetallic conduit (RNC) or raceway refers to HDPE, PE, PVC or RTRC conduit and duct. Corrugated coilable utility duct is not covered in this guideline; details on storage, handling, and installation are covered in NEMA TCB-3.

Although not specifically mentioned in this guideline, variations of the products discussed may occasionally be specified. Users should follow installation recommendations of the manufacturer.

NOMENCLATURE

Abbreviations for nonmetallic materials referenced in this guideline include the following:

HDPE	High Density Polyethylene
PE	Polyethylene
PVC	Polyvinyl Chloride
RTRC	Reinforced Thermosetting Resin Conduit (fiberglass)

Abbreviations for burial type include:

DB	Direct burial – refers to duct buried without concrete encasement
EB	Encased burial – refers to duct buried with concrete encasement

Abbreviations for stiffness include:

DS	Duct stiffness
PS	Pipe stiffness

Abbreviations for conduit type include:

EPC 40	PVC conduit (Schedule 40)
EPC 80	Extra heavy wall PVC conduit (Schedule 80)
EPEC	Smooth wall coilable high density polyethylene conduit
RNC	Rigid nonmetallic conduit

Abbreviations for wall type include:

HW	Heavy wall – refers to HW RTRC
SW	Standard wall – refers to SW RTRC
XW	Extra heavy wall – refers to XW RTRC

STANDARDS AND GUIDELINES REFERENCES

ASTM D 2412 *Standard Test Method for Determination of External Loading Characteristics of Plastic Pipe by Parallel-Plate Loading*

ASTM D 2564 *Standard Specification for Solvent Cements for Poly(Vinyl Chloride) (PVC) Plastic Piping Systems*

ASTM D 2657 *Standard Practice for Heat Fusion Joining of Polyolefin Pipe and Fittings*

ASTM D 2855 *Standard Practice for Making Solvent-Cemented Joints with Poly(Vinyl Chloride) (PVC) Pipe and Fittings*