# בדיקות חשמל בחו״ל

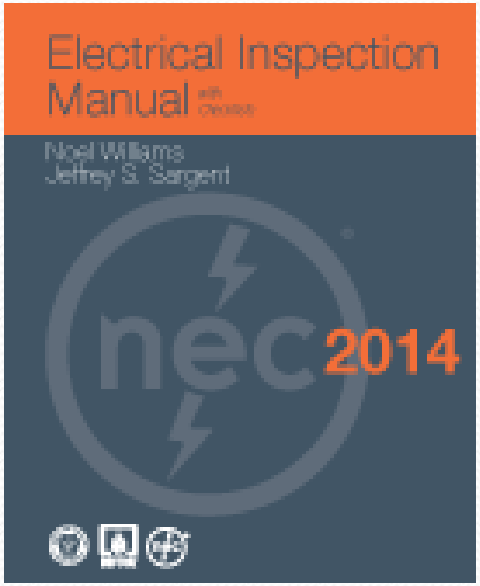
אברמל׳ה יניב

# מה קובעת הרגולציה

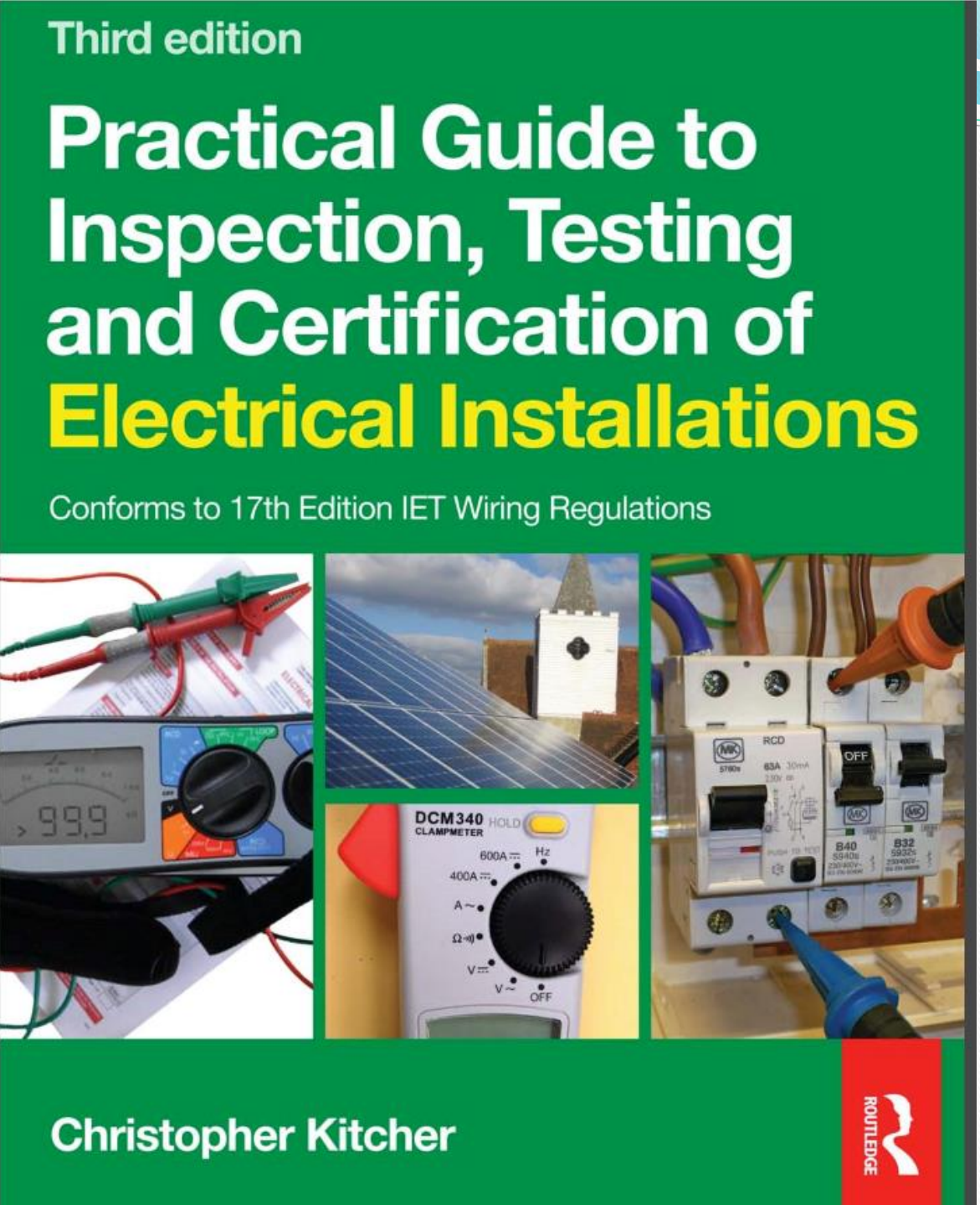
- מה נדרש לבדוק
- מי מבצע את הבדיקה
- התייחסות לבדיקות תקופתיות
- תיעוד הבדיקה

**מבוסס על איסוף מידע באינטרנט**
**ובאתרים של ארגוני בדיקות בולטים**

# Electrical Inspection Manual 2014




Item #: 350005 - Packed with precise, step-by-step checklists, detailed illustrations, and informative chapter explanations, the Electrical Inspection Manual, 2014 Edition identifies important Code rules and provides guidance on how-to organize checklists by occupancy type to increase thoroughness and decrease the likelihood of overlooking potential problems. Written by certified electrical inspectors, and endorsed by the National Fire Protection Association (NFPA) and the International Association of Electrical Inspectors (IAEI), this fully illustrated manual explains significant tasks, defines terms, outlines key questions, and provides a concise overview of the electrical inspection process.




# ספר באנגליה מבוסס על דרישות תקן BS 7671

# ROCHESTER

*Minnesota*

## Building Safety Department

2122 Campus Drive SE Rochester, MN 55904 Phone: 507-328-2600 Fax: 507-328-2601
Office Hours: 8 am – 5 pm Monday through Friday
www.rochestermn.gov

# Electrical Permits and Inspections

# For Homeowners

**1 & 2 Family Dwellings and Associated Accessory Buildings**

**Based on the 2014 National Electrical Code**

# עבודות מותרות לבעל הבית

Generally, **Minnesota law requires all electrical work to be performed by licensed electrical contractors and their employees**, however; **homeowners may perform electrical work on their own home under certain conditions**. All work must be performed by the owner, the dwelling cannot contain more than two units, and all work must be **inspected and conform** to all relevant codes.

# אישור לביצוע העבודה

A building permit does not cover any electrical work. **A separate electrical permit is required**. The permit can be obtained by completing the application form and submitting the required fee, along with a drawing showing electrical work (see cover and pg. 9), to the **Building Safety Department**. A permit must be issued **prior to beginning any work**.

# נדרשות שתי בדיקות

**A ROUGH-IN INSPECTION** must be made before any wiring is covered by insulation, sheetrock, paneling, or other materials. Underground wiring must be inspected before the trench is back-filled.

**A FINAL INSPECTION** is required when all wiring has been completed and all devices, lighting fixtures, and appliances have been installed and tested.

# Long Island Power Authority
# INSPECTIONS AND APPROVALS

To protect the customer's interests, as well as its own, LIPA requires the customer to furnish satisfactory evidence of the safe condition of his wiring before any service is connected. **This will require an electrical inspection certificate from the authority having jurisdiction or an inspection agency approved by the authority having jurisdiction.** Also, when service wiring is increased or extended, an inspection certificate is required and a certificate may be required for service reconnects. Inspections shall confirm compliance with the National Electric Code, any applicable municipal codes and any Company specification that may supercede portions of the aforementioned codes. LIPA reserves the right to challenge the inspection when Company personnel observe deficiencies in the installation at any time prior to energizing the installation. Application for service and inspection should be made before the work is started. It is LIPA's intent that all electric services of outdated design be brought into compliance with these current specifications (as well as NEC and NESC code, as they may apply) when the service size is changed, load is added, or major service construction/replacement work is performed.

On ALL **fire and flood damaged** homes, it will be necessary to obtain an **electrical inspection certificate** from an approved inspection agency and provide it to LIPA before re-connection.

# Long Island Power Authority
# INSPECTIONS AND APPROVALS

תנאי לחיבור לחשמל:

- נדרשת תעודת בדיקה מרשות מוסמכת או גוף בדיקות מורשה.
- הבדיקה תוודא התאמה לדרישות ה NEC
- כוונת LIPA לבצע התאמה לתקנות עדכניות בעת הגדלה/שינוי משמעותי במתקן/הוספת עומס
- בשריפה או הצפה, נדרשת תעודת בדיקה מגוף בדיקות מורשה, לצורך חיבור מחדש

# Ontario Canada

Electrical inspections are the law

Electrical inspections are required in order to comply with requirements of the *Electricity Act 1998* and the Ontario Electrical Safety Code (Ontario Regulation 10/02). It's the law. All electrical installations, renovations and alterations are required to have an electrical inspection. This includes:

1. Installation of outlets, switches, lighting fixtures, baseboard heaters, smoke detectors (excluding battery-operated types), exhaust fans, etc.
2. Installation of new equipment such as heat pumps, water heaters, air conditioning, swimming pools, whirlpools, saunas, etc.
3. Electrical service upgrades or changes
4. New homes, additions or renovations.

Today, inspections are handled by the Electrical Safety Authority (ESA)

# אכיפה

**חובת ביצוע בדיקה ראשונית נאכפת באמצעות:**

- **תנאי לחיבור חשמל חדש**
- **תנאי לביצוע מכירת מבנה**
- **דרישות חברות הביטוח**
- **ביקורות/מפקחים של משרד ממשלתי**

# מי מבצע את הבדיקה

**יש שוני במדינות בהתארגנות לביצוע הבדיקות:**

- **מחלקת בדיקות בחברת החשמל המקומית**
- **גוף בדיקות ציבורי**
- **גוף בדיקות פרטי**

# הסמכת בודקים

**במרבית המדינות נדרש רישיון מיוחד לבדיקות.**

**בחלק מהמדינות יש חלוקה לסוגי רישיון בודק (ביתי ואחר).**

**נדרש רישיון חשמלאי עם ותק כחשמלאי וניסיון בבדיקות.**

נדרש קורס ומבחן בכתב.

# הסמכת בודקים

**Certified Electrical Inspector Residential**

•High school or GED
•Completion of Registered Electrical Apprenticeship Training Program, or
•Associate Degree in Electrical Construction Technology (or equivalent), or
•Journeyman Electrician (or equivalent) or Master Electrician, or
•BS in Electrical Engineering or PE in Electrical Engineering, or
•4,000 hours as an electrician, or
•2,000 hours as an electrical inspector

**Certified Electrical Inspector Master**

Eligibility requirements are the same as the Residential program with the exception of:
8,000 hours as an electrician, or
•4,000 hours as an electrical inspector

# הסמכת בדיקות באוסטרליה

- ניסיון של 3 שנים כחשמלאי
- קורס מוכר
- בחינות בכתב
- בחינה/הערכה מעשית
- קורס/השתלמות בבטיחות וע"ר

# How often is a periodic inspection required?

**Your electrics should be inspected and tested every:**

- **10 years for an owner-occupied home.**
- **5 years for a rented home.**
- **3 years for a caravan**
- **1 year for a swimming pool.**
- **When a property is being prepared for letting.**
- **Before selling a property**

# QBE Insurance Group

| Type of Installation | Maximum period between inspections and testing |
|---|---|
| **General** | |
| Industrial | 3 years |
| Offices / Shops / Laboratories | 5 years |
| Educational Establishments | 5 years |
| Commercial | 5 years |
| **Buildings open to the Public** | |
| Leisure Complexes / Places of Public Entertainment / Theatres | 3 years |
| Restaurant and Hotels / Public Houses / Village Halls and Community Centres | 5 years |
| **Special and specific installations** | |
| Swimming Pools / Marinas / Fish Farms | 1 year |
| Laundrettes / Petrol Filling Stations | 1 year |
| Construction Site Installations | 3 months |

# Electrical Inspection Checklists

This pdf contains 77 electrical inspection checklists taken from the 2014 *Electrical Inspection Manual with Checklists*. The checklists are in PDF format and can be completed electronically or printed and used as hard copy.

The checklists are intended to help inspectors keep track of the numerous aspects of an electrical installation that must be checked, verified, reviewed, determined, or otherwise examined for *NEC*® compliance. The checklists are also intended to serve as an organizational tool for contractors, project managers, or anyone who conducts, receives, or is responsible for electrical inspections, or who may wish to perform self-inspections, of electrical installations.

The checklists are organized as follows:

- **Chapter 1: Introduction**
  - Checklist 1-1: General Safety Checklist for Electrical Inspections
- **Chapter 2: General Requirements Inspections**
  - Checklist 2-1: General Requirements for Electrical Inspections
- **Chapter 3: Wiring Methods and Devices**
  - Checklist 3-1: General Wiring Methods
  - Checklist 3-2: Boxes and Conduit Bodies
  - Checklist 3-3: Cabinets and Cutout Boxes
  - Checklist 3-4: Switches and Receptacles

# תיעוד

| Checklist 5-1: Service Grounding and Bonding (cont.) | | | | |
|---|---|---|---|---|
| ✔ | Item | Inspection Activity | *NEC* Reference | Comments |
| ☐ | 8. | Verify the accessibility of grounding electrode conductor connections. | 250.68(A) | |
| ☐ | 9. | Check for proper grounding electrode conductor connections, including buried connections. | 250.70 | |
| ☐ | 10. | Verify that metal water pipe installed in or attached to a structure is bonded. | 250.104(A) | |
| ☐ | 11. | Verify that exposed structural building frames are bonded. | 250.104(C) | |
| ☐ | 12. | Check for proper size and length of bonding jumpers around water meters and the like. | 250.66, 250.68(B), 250.52(A)(1) | |
| ☐ | 13. | Check the size, type, and installation of the main bonding jumper. | 250.24(B), 250.28 | |
| ☐ | 14. | Verify that service raceways and enclosures are correctly bonded. | 250.92(A), 250.92(B), 250.102 | |
| ☐ | 15. | Check the size of service-equipment supply-side bonding jumpers. | 250.102(C) | |
| ☐ | 16. | Verify that the grounded service conductor size is adequate. | 220.61, 250.24(C) | |
| ☐ | 17. | Check separately derived systems for proper grounding electrodes, grounding electrode conductors, and system bonding jumpers. | 250.30(A) | |
| ☐ | 18. | Verify that water pipe and structural metal building frames in the area served by each separately derived system are bonded. | 250.104(D)(1), 250.104(D)(2) | |
| ☐ | 19. | Verify that an intersystem bonding termination has been provided. | 250.94 | |
| ☐ | 20. | Verify that where a wire-type EGC is also used as a grounding electrode conductor, it meets all applicable requirements for both grounding electrode conductors and EGCs. | 250.121 Exception | |

# ארגוני בדיקות

- אנגליה - http://www.fixedtesting.com/
- אירופה - http://www.etics.org/
- ארה״ב - http://www.iaei.org/
- קנדה - https://www.esasafe.com/