# PART 2

## OTHER CODES THAT REQUIRE ELECTRICAL

10:30-12

# OTHER CODES

## THAT REQUIRE ELECTRICAL INSTALLATIONS

PREPARED FOR NEBOEA

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# INTRODUCTION to OTHER CODES and STANDARDS THAT REQUIRE ELECTRICAL REQUIREMENTS

**IBC - IEBC - IECC - IMC - IRC - ANSI - A 117.1**

**NFPA 70 - 72 - 101 - 54 - 31 NESC (IEEE)**

**UL ETL (NRTLS') ASTM**

# PRESENTATION OBJECTIVE

- GENERAL AWARENESS OF CODES THAT DETERMINE BUILDING USES CLASSIFICATIONS AND TYPES OF CONTRUCTION
- CODES OTHER THAN NEC THAT REQUIRE WIRING SYSTEMS FOR POWER AND CONTROL
- PROVIDE WEB SITES TO FREE PUBLIC ACCESS FOR NFPA AND ICC
- community.nfpa.org iccsafe.org for free read only access
- Promote membership to the International Association of Electrical Inspectors www.iaei.org

# WHY CODES EXIST

## PUBLIC SAFETY AND WELFARE

ISLANDS, CITIES, TOWNS AND VILLAGES HAVE BURNED,OR COLLAPSED FROM SEISMIC EVENTS OR DEVASTATED BY HURRICANES AND FLOOD WATER.

1 PUERTO RICO HURRICANE (2017) – 2,975
2 LA / MISS FLOOD ( 2005 ) – 1,800
3 RI STATION NIGHT CLUB, ( 2003 ) – 100+
4 MA COCOANUT GROVE NIGHT CLUB, ( 1942 ) – 492
5 OHIO PRISON, ( 1930 )- 320
6 CHICAGO IROQUOIS THEATER, ( 1903 ) – 602
7 SAN FRANCISCO (1906) EARTHQUAKE / FIRE 3000+?
8 GREAT FIRE OF CHICAGO ( 1871 ) – 300+ ?
9 GREAT FIRE OF LONDON ( 1666 ) – 6+ ?

CODES ARE THE MINIMUM LIABILITY THAT THE GOVERNING BODIES HAVE VOTED INTO LAW.

NH RSA 155-A
www.gencourt.state.nh.us

# STATE BUILDING CODE
# RSA 155-A

- www.gencourt.state.nh.us

- THE RSA INCLUDES DEFINITIONS AND EXPLANATIONS OF WHEN OTHER CODES ARE MORE STRINGENT. (state fire code)
- THE ADOPTED ICC / NFPA CODES ARE LISTED IN RSA 155-A
- FREE READ ONLY PUBLIC ACCESS IS AVAILABLE FOR ALL CODES

# LIABILITY OF INSTALLATIONS
# RSA 155-A

- 155-A:2 1. THE MINIMUM ADOPTED CODES APPLY TO ALL BUILDINGS

- RSA 155-A:2 VII THE CONTRACTOR IS LIABLE / RESPONSIBLE

- THE MUNICAPLITIES ARE NOT LIABLE / RESPONSIBLE
  *Even when the ahj is not available or has limited knowledge.*
  *Many ahj's are combination inspectors (limited visual inspections)*
  *On a good day, it's an exchange of information.*
- INSPECTORS CONFIRM COMPLIANCE TO A SPECIFIC CODE, NO DESIGN

# ICC CODES REQUIRING ELECTRICAL INSTALLATIONS

INTERNATIONAL CODE COUNCIL (ICC) iccsafe.org

- INTERNATIONAL BUILDING CODE (IBC) MULTI FAMILY AND COMM
- INTERNATIONAL EXISTING BUILDING CODE (IEBC) 3 LEVELS
- INTERNATIONAL RESIDENTAIL CODE (IRC)
- INTERNATIONAL ENERGY CONSERVATION CODE (IECC)
- INTERNATION MECHANICAL CODE (IMC) HVAC
- INTERNATIONAL PLUMBING CODE (IPC)
- INTERNATIONAL FIRE CODE (IFC)

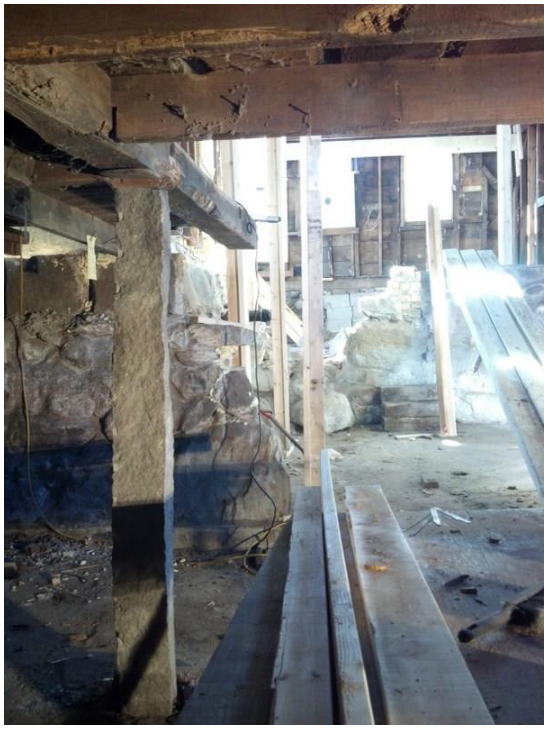
# INTERNATIONAL BUILDING CODE (IBC) icc.safe.org

- THE IBC IS THE COMMERCIAL BUILDING CODE THAT IS USED FOR ALL COMMERCIAL AND MUTI-FAMILY(*excluding up to 10 adjoined town houses)*
- THE IBC IS THE CODE THAT IS USED FOR SCOPING WHEN DETERMINING A USE AND CLASSIFICTION .
- THE USE AND CLASSIFICATION MAY DETERMINE CONSTRUCTION TYPE
- MIX USE BUILDINGS MAY REQUIRE DIFFERENT RATINGS AND SEPERATIONS.
- ***DIFFERANT WIRING METHODS FOR DIFFERENT USES / OCCUPANCIES***
- ***NONMETALIC CABLE OR METAL CLAD***

# INTERNATIONAL EXISTING BUILDING CODE

(IEBC) iccsafe.org

- IEBC INCLUDES 3 LEVELS OF ALTERATIONS / RENOVATIONS
- LEVEL 1 IS MINIMAL AND MAY INCLUDE SIDING, WALL COVERING, FLOORING, PAINTING ECT;
- LEVEL 2 IS GETTING INTO OPENING WALLS, ELIMINATING WALLS, LIGHT STRUCURAL AND LESS THAN 50% AGGREGATE AREA.
- LEVEL 3 IS GENERALLY MORE THAN 50% AGGREGATE AREA AND CONSIDERED NEW.



# INTERNATINAL RESIDENTIAL CODE

IRC iccsafe.org

- 1 - 2 FAMILY AND UP TO 10 TOWN HOUSES THAT ARE SEPERATED
- IRC IS AN ALL INCLUSIVE CODE BOOK (*excluding nfpa 70 nec )*
- SMOKE ALARM AND CARBON MONOXIDE REQUIRMENTS
- MINIMUM LIGHTING AND CONTROL REQUIREMENTS
- CONDENSATION PUMP, DISCHARGE AND INTERLOCK
- PERMIMENT COOKING AND REFRIDGERATION
- CENTRAL HEATING, DOMESTIC HOT WATER
- ATTIC AND CRAWL SPACE ACCESS

# INTERNATIONAL ENERGY CONSERVATION CODE

IECC iccsafe.org

- ***EXISTING KNOB AND TUBE WIRING CAN BE EFFECTED WHEN INSULATION IS PLACED IN AN EXISTING ATTIC OR WALL .***
- ***FLAT RE-ROOFING REQUIRES PITCH POCKETS AND HORIZONTAL PVC, EMT WIRING TO BE MAINTAINED OR DAMAGED.***
- OUTLET BOXES ON EXTERIOR WALLS ARE REQUIRED TO BE SEALED
- SWIMMING POOL AND POOL HEATER CONTROLS ARE REQUIRED
- 50% OF LUMINAIRES ARE REQUIRED TO BE ENERGY EFFICIENT
- LIGHTING CONTROLS ARE REQUIRED TO BE IN COMPLIANCE (OCC SENS)
- ENERGY COMPLIANCE SUBMITALS ARE REQUIRED WITH PERMIT APPS
- HVAC- RESIDENTIAL AND COMMERCIAL, OFFSITE MANAGEMENT


# INTERNATIONAL MECHANICAL CODE

IMC iccsafe.org

- HVAC – CONTROL, SEQUENCE OF OPERATION, OFFSITE MANAGEMENT-ALARMS / DUCT SMOKES
- CONDENSATION DISCHARGE PUMP POWER AND INTERLOCK
- COMMERCIAL COOKING HOODS, TYPE 1 AND TYPE 2
- MAKE-UP AIR AND INTERLOCK SYSTEM FOR TYE 1 COOKING HOODS
- SMOKE CONTROL SYSTEMS (*large multi story atriums)*
- ENCLOSED PARKING GARAGE CARBON MONOXIDE SYSTEM
- SAUNA HEATER POWER AND CONTROLS
- ***SEVERAL OTHER MECHANICAL SYSTEMS REQUIRE POWER AND CONTROL***

# INTERNATIONAL PLUMBING CODE
# IPC iccsafe.org

- PUBLIC REST ROOMS USE POWER SUPPLIES TO ACTIVATE SOAP DESPENSORS AND TOILET FLUSH DEVICES.
- MANY COMMERCIAL SITES USE ALTERNATING SEWAGE PUMPS AND ALTERNATING WELL WATER PUMPS.
- MOST RESIDENTIAL COMMUNITY WATER SUPPLY RELY ON ALTERNATING WELL PUMPS AND AIR COMPRESSORS TO MAINTAIN WATER SUPPLY AND PRESSURE IN THE SYSTEM.

# NFPA CODES REQUIRING ELECTRICAL INSTALLATIONS

NATIONAL FIRE PROTECTION ASSOCIATION WWW.NFPA.ORG

- NFPA 54 FUEL GAS (OWNERS SIDE OF DISTRIBUTION) USE
- NFPA 58 FUEL GAS STORAGE AND DELIVERY
- NFPA 31 OIL BURNER EQUIPMENT INSTALLATION
- NFPA 72 FIRE ALARM AND MONITORING
- NFPA 101 LIFE SAFETY (EGRESS)
- NFPA 13 FIRE SPRINKLER / SUPPRESSION
- NFPA 20 FIRE PUMPS
- ALMOST EVERY MODEL CODE DEFERS TO THE NFPA 70 (NEC)

# NFPA 54 FUEL GAS

WWW.NFPA.ORG

- ***NFPA 54 FUEL GAS - REMOTE SWITCH NOT ALLOWED / VIOLATION***
- MANY INSPECTORS REQUIRE A REMOTE SWITCH FOR GAS BURNING APPLIANCES. A LOCAL SERVICE SWITCH FOR THE TECHNICIAN IS ALLOWED, A REMOTE "SO CALLED" EMERGENCY SWITCH IS NOT ALLOWED.
- MANY INSPECTORS REQUIRE A SPRINKLER HEAD AND OR A FIREMATIC ABOVE THE GAS BURNING HEATING APPLIANCE .
- GAS FIRE PLACES REQUIRE POWER AND CONTROL (FIRE LID)
- POWER VENT EQUIPMENT FOR HVAC AND DOMESTIC HOT WATER.

# FUEL GAS SUPPLY AND STORAGE

NFPA 58 www.nfpa.org

- CLEARANCES ARE REQUIRED FROM POINTS OF IGNITION,
- RECEPTACLE OUTLETS, DISCONNECT'S AND GENERATORS ARE CONSIDERED TO BE POINTS OF IGNITION
- BUILDING OPENINGS FOR VENTILATION OUTLETS AND DRY EXHAUST.
- GAS FIRE PLACES REQUIRE POWER AND CONTROL (FIRE LID)
- POWER VENT EQUIPMENT FOR HEATING APPLIANCES

# FIRE PUMPS AND CONTROLERS

NFPA 20 NFPA.ORG

- IBC – BUILDING HEIGHT AND AREA,CONSTRUCTION TYPE, USE AND CLASSIFICATION ARE THE BASELINES FOR THE DESIGN PROFESSIOALS.
- FIRE PROTECTION ENGINEERS DESIGN THE SUPPRESSION SYSTEMS IN COMPLIANCE WITH NFPA 1, 101, 20, 72 AND 70 (NEC).
- ENGINE AND ELECTRIC MOTOR DRIVEN FIRE PUMPS ARE BROUHGT ONLINE BY ELECTRIC ALARM AND CONTROL WIRING.
- ELECTRIC FIRE PUMP CONTROLERS ARE REQUIRED.
- MANY FIRE SUPPRESSION SYSTEMS INCLUDE ELECTRIC JOCKY PUMPS AND/OR AIR COMPRESSORS.
- ALL RELATED CODES REFFER TO NFPA 70 FOR ELECTRICAL WIRING.

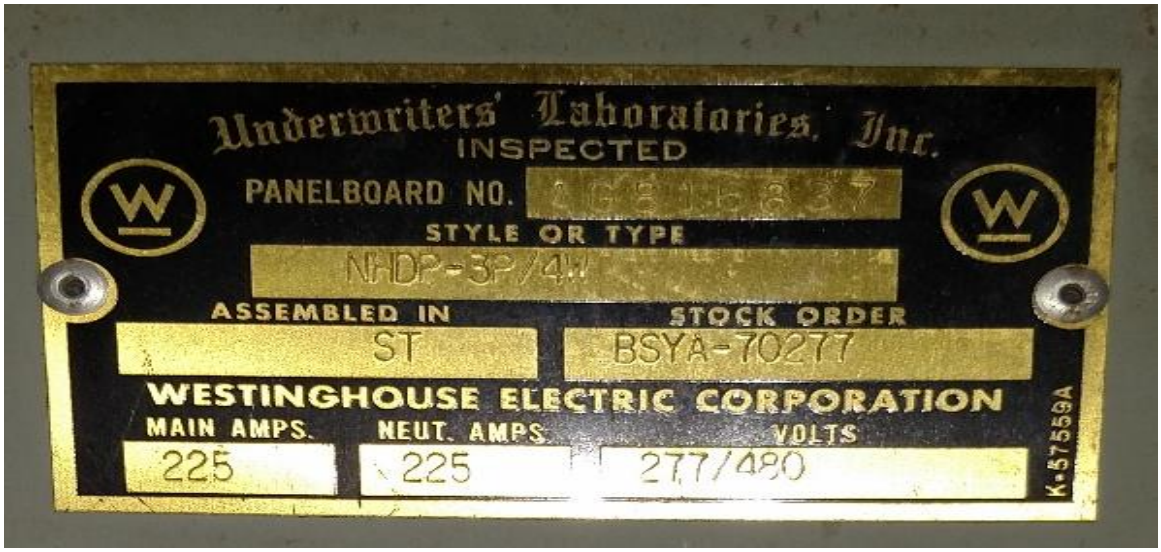
# CODES, PERMITS, INSPECTORS

*AND THE HANDY HOMEOWNER*

- THE CODES APPLY TO THE HANDY PERSON AS WELL AS THE HOMEOWNERS.
- MOST SWIMMING POOL SALES AND INSTALLERS DO NOT APPLY FOR PERMITS. THE HOMEOWNER IS GENERALLY THE APPLICANT.
- DECKS ARE ANOTHER FAVORITE PROJECT
- MEP’S AREN’T EXEMPT THE HOMEOWNER OR HANDY PERSON.

# NATIONALLY RECOGNIZED TESTING LABORATORIES (NRTL'S)

- SHALL BE RECOGNIZED BY OSHA
- THERE ARE AT LEAST 18 NRTL'S
- UNDERWRITERS LABORATORIES (UL) IS ONE OF THE OLDEST
- UL ALSO DEVELOPS STANDARDS
- NRTL'S TEST PRODUCTS TO A DEVELOPED STANDARD AND SET CONTRACTS FOR INSPECTIONS AT THE MANUFACTURERS FACILITY.
- PRODUCTS SHALL BE IDENTIFIED AND LABELED


Underwriters' Laboratories, Inc.
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MAIN AMPS.
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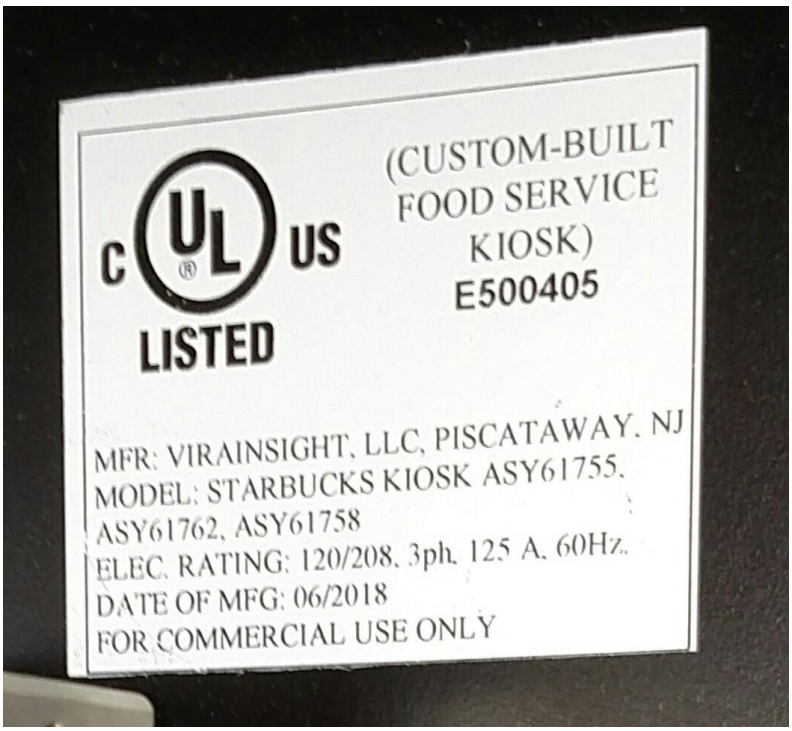
c UL us
LISTED
(CUSTOM-BUILT FOOD SERVICE KIOSK)
E500405
MFR: VIRAINSIGHT, LLC, PISCATAWAY, NJ
MODEL: STARBUCKS KIOSK ASY61755, ASY61762, ASY61758
ELEC. RATING: 120/208, 3ph, 125 A, 60Hz.
DATE OF MFG: 06/2018
FOR COMMERCIAL USE ONLY


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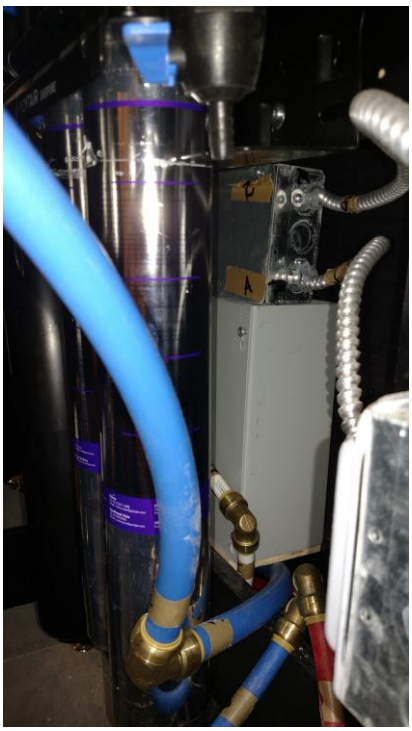

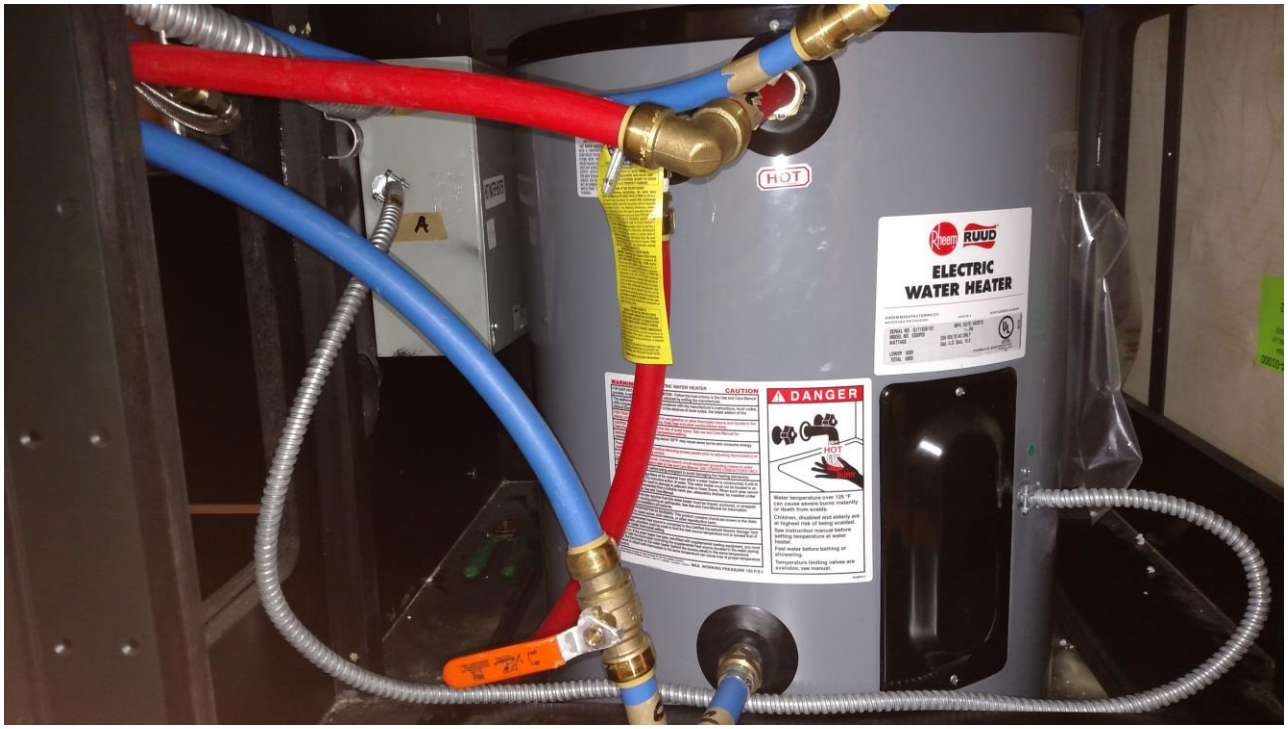
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WATER HEATER
CAUTION
DANGER
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# Another Code

## National Electrical Safety Code
## IEEE is the Author of NESC

- IEEE, an association dedicated to advancing innovation and technological excellence for the advancement of humanity, is the world's largest technical professional society. It is designed to serve professionals in all aspects of the electrical, electronic, and computing fields and related areas of science and technology that underlie modern civilization.

  - The NESC is revised every 5 years. The purpose of the NESC is the practical safeguarding of persons during the installation, operation, or maintenance of electrical supply and communication lines, equipment, and associated work practices employed by a private or public electric supply, communications, railway, or similar utility in the exercise of its function as a utility.

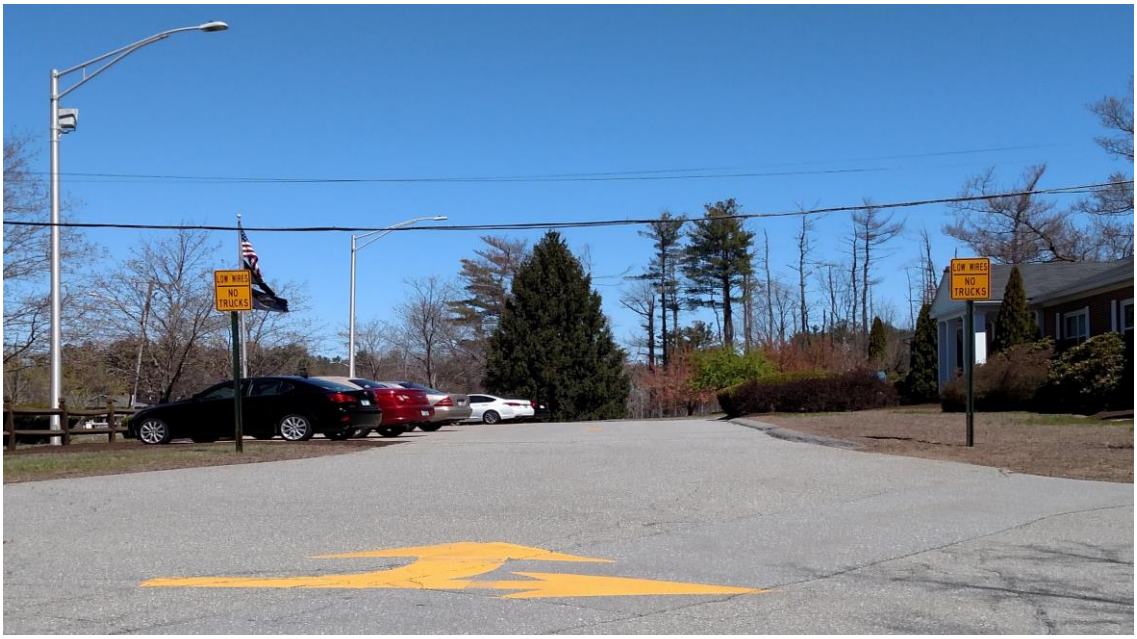
## Installations of optical fiber cable.

Installations in buildings used by the electric utility, such as office buildings, warehouses, garages, machine shops, and recreational buildings that are not an integral part of a generating plant, substation, or control center.

# What Isn't Covered

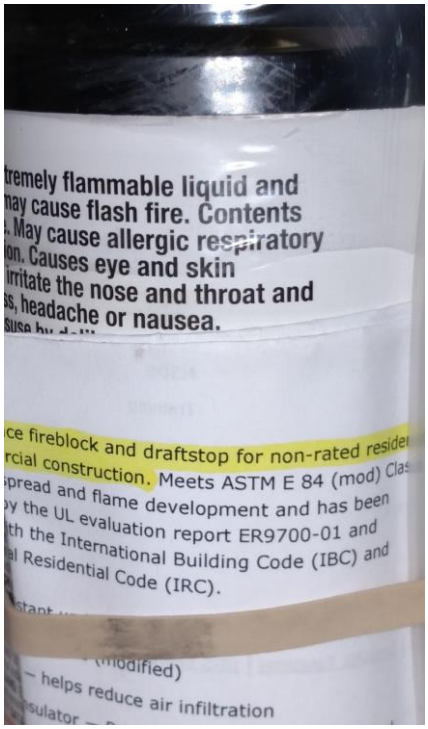
NESC rules do not cover installations in mines, ships, railway rolling equipment, aircraft or automotive equipment, or utilization wiring except as covered in Parts 1 and 3. For building utilization wiring requirements, see the National Electrical Code.

# Low Wires Signage




**NEC 2014 Article 300.21 Spread of Fire or Products of Combustion**

Electrical installation in hollow spaces, vertical shafts, and ventilation or air – handling ducts shall be made so that the possible spread of fire or products of combustion will not be substantially increased. Openings around electrical penetrations into or through fire-resistant-rated walls, partitions, floors, or ceilings shall be firestopped using approved methods to maintain the fire resistant rating.




Not this stuff


## How the NESC Differs from the NEC

The NEC, NFPA-70, addresses proper electrical systems and equipment installation to protect people and property from hazards arising from the use of electricity in buildings and structures. This includes:

- Installations of electric conductors and equipment within or on public and private buildings or other structures, including mobile homes, recreational vehicles, and floating buildings; and other premises such as yards, carnivals, parking lots, and industrial substations.
- Installations of conductors and equipment that connect to the supply of electricity.
- Installations of other outside conductors and equipment on the premises.


UTION


Fairlane
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