WHITEPAPER

NFPA 79 EDITION 2015

AND THE “AMERICAN WAY OF LIFE”

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MODIFICATIONS AND IMPACTS ON MACHINERY AND PLANT EXPORTERS

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As a result of an ongoing globalization, export business is getting more and more in the focus of company activities. North America and especially the USA plays a considerable role as a very interesting market, although machinery and plant engineering companies have to take a few special considerations into account.

RELEASE PROCESS IN THE US TRADE AREA

Unlike the European Union, products to be imported into the US trade area do not have to have an explicit testing mark, e.g. a CE marking. Exceptions only apply to products that require an FDA approval (Food and Drug Administration) or fall under the FCC guidelines (Federal Communication Commission). Under no circumstances may this regulation be regarded as a carte blanche for export-based machinery and plant engineering companies. The initial commissioning and operation of commercially used machinery and plants in the US has to be approved by the local bodies (AHJ – Authority Having Jurisdiction). This may either by an authority or an individual person. Generally speaking, for acceptance, AHJs require the relevant testing marks from what are known as NRTLs (Nationally Recognized Testing Laboratories), which test the conformity of components, machinery and plants with standards and certify them. The NRTLs are appointed and supervised by the OSHA (Occupational Safety and Health Administration) and are an important part of the release chain.

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EFFECTS OF NFPA 79 EDITION 2015

It is here that the editions 2012 and 2015 of the NFPA 79 standard come into place. As the technical standard for the cabling of industrial machinery in the USA, this is closely interdependent with the National Electric Code (NEC) and is one of the most significant standards for all exporting machinery and plant engineering companies. The NEC, also known as the basic standard under NFPA 70, refers to the NFPA 79 in article 670 (Industrial Machinery). The interdependency is explained by the fact that the NEC provides standards for "general electrical installation" topics and therefore has to be taken into account as the foundation for all applications.

With the publication of the NFPA 79 edition 2012 and 2015, it can definitely be said that the authorities have accommodated the users well as the new standard versions are considerably more user-friendly than the previous versions. Where NFPA 79 edition 2007 explicitly prohibited AWM single core or multi-core AWM cables (Appliance Wiring Material) with the exception of what is known as a discretionary provision (AWM cables as part of a "listed assembly"), the 2012 and 2015 editions of the NFPA 79 considerably lower the hurdles and allow the use of AWM cables in several scenarios. The clear objective here is to simplify use of the UL-AWM as recognised components.

INFO

"... the new standard versions are considerably more user-friendly than previous versions."

In the future, AWM cables should be permitted as per NFPA 79 Edition 2012 and 2015 – Chapter 12.9 as long as at least one of the following conditions is complied with:

- Cable as part of a, for this purpose, "listed assembly"
- Cable specified for use in a listed plant or machine and used in line with the component supplier's instructions
- Cable complies with all the design requirements as per NFPA 79 (Chapter 12.2 – 12.6) including enhancements with respect to stranding, flame retardence, insulation wall thickness and insulation/sheath marking

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FURTHER CHANGES

Machinery documentation shall also be supplemented to include the AWM style that corresponds to the AWM cable. As a result, the machinery and plant engineering companies are afforded a new level of freedom and at the same time more responsibility – the burden of proof regarding the suitability of the AWM cable is with them and should be shown in the documentation. There is also a major change when it comes to cabling technology. Although AWM cables are still not intended for direct on-site cabling (field wiring), there are assembly-related processes that make the use of cables in field wiring essential. One example is a machine that is pre-labelled in Germany but has to be partially dismantled for transport purposes or if the final acceptance takes place on site (field label). In this case, the technical documentation shall be supplemented with installation instructions by the machinery or plant engineering company.

There are no changes regarding the use of UL-listed cables intended for use in fixed cabling in buildings used for residential purposes, for commercial use and for the industry. Depending on their purpose, listed products can continue to be imported into the USA with no problems. Listed cables can be used both for factory installation and for on-site cabling in line with NFPA 79 and/or NEC.

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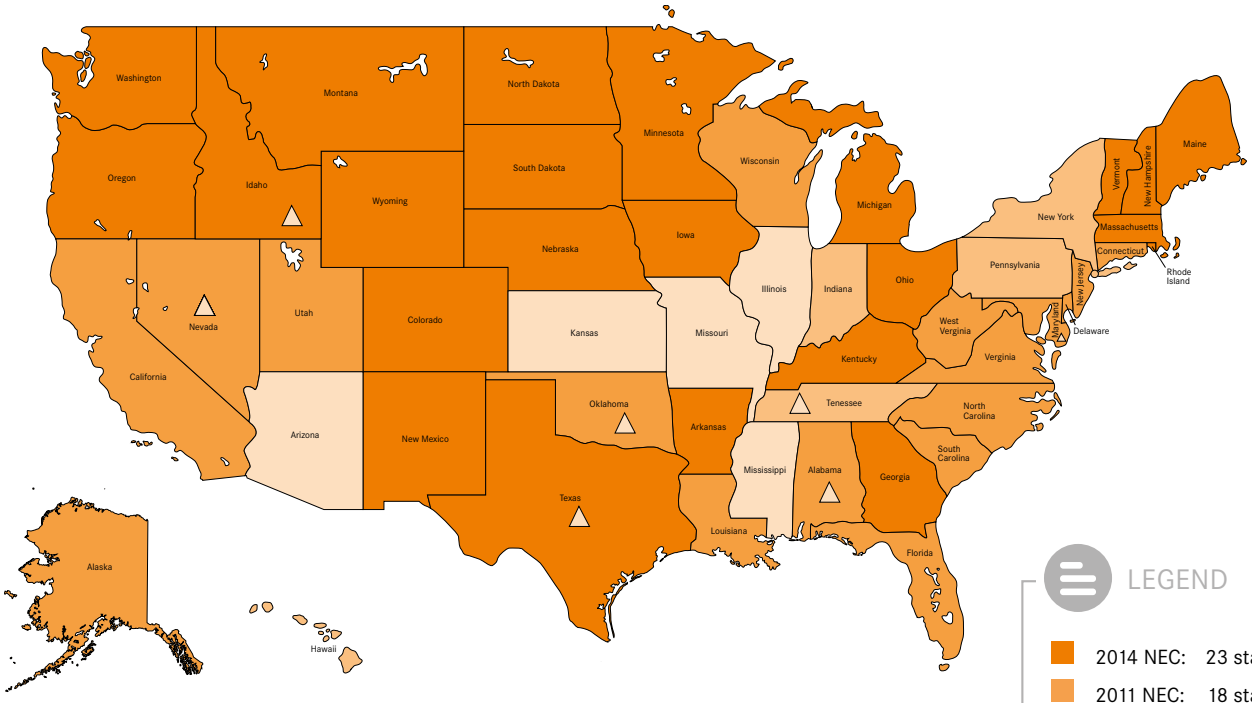
Adoption of the NEC regulations by US State



LEGEND

- 2014 NEC: 23 states
- 2011 NEC: 18 states
- 2008 NEC: 5 states
- Local adoption: 5
- Subject to relevant local adoption

Note: In some US states with local adoption of the regulations, older NEC regulations than the 2008 version apply for some local authorities

As at June 2015

LOCAL SPECIAL CONSIDERATIONS FOR THE LEGAL BASIS

The geographic penetration of editions 2012 and 2015 of NFPA 79 should continue to be kept an eye on. Essentially, it is always the latest edition that should be used as a foundation, however in some US states it is still older versions of the NFPA 79 that form the valid legal basis. This is explained on the one hand by the fact that within the federation of states in the USA, standards first have to be ratified by the states and on the other hand, by the fact that the two books of standards have different publication periods (NEC, NFPA 79). For example, NEC 2011 refers to NFPA 79 edition 2007 while NEC 2014 targets NFPA 79 edition 2012. Since the next edition of the NEC will not be published until 2017, no reference will be made to edition 2015 of NFPA 79 so far. It is also important to know that local requirements take priority over national regulations. For example, some large US cities such as San Francisco or Chicago have written their own additional codes which check the relevant AHJ before machinery and/or plants can be commissioned.

We will have to wait and see when and how the NRTLs and AHJs apply the new guidelines in practice. LAPP recommends obtaining information from the NRTLs or AHJs about which edition forms the legal basis at the target location is. In this way, companies can in some circumstances save effort as well as considerable additional costs at an early stage.

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LAPP GROUP SOLUTION EXPERTISE

LAPP offer a wide range of both UL-listed and UL-AWM-certified cables. The fast availability of the relevant products and the in-depth knowledge of all the current regulations enable us to provide optimum advise to export-based customers, thereby also helping to contribute to selecting the correct cables.

The cable range compliant with NFPA 79 Edition 2012 and 2015 in control and power cables include the following types, for example: ÖLFLEX® CONTROL TM, Tray II – both in shielded and unshielded variants; the UNITRONIC® 300 for data network cables. The common advantage of the cables specified here is that thanks to the additional approval "ER = Exposed Run", they can also be routed up to the electrical equipment without additional mechanical protection such as conduits or other closed systems.

CROSS REFERENCES

Products at LAPP

REFERENCES

- National Electric Code®, 2010, Quincy (Massachusetts)
- National Electric Code® Handbook, 2011, (Quincy) Massachusetts
- NFPA® 79 – Electrical Standard for Industrial Machinery, 2011, Quincy (Massachusetts)

LINKS

OSHA:
www.osha.gov

NEMA:
www.nema.org/stds/fieldreps/NECadoption/implement.cfm

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