



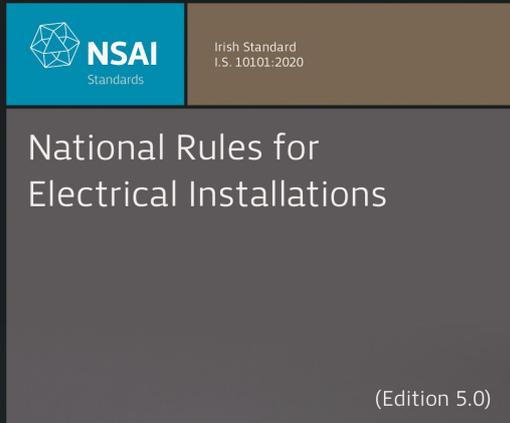
Safe Electric, the statutory regulatory scheme for electrical contractors is operated by the Register of Electrical Contractors of Ireland (RECI) on behalf of the Commission for Regulation of Utilities (CRU).

RECI was appointed as a Safety Supervisory Body by the CRU and will operate on a not-for-profit basis under the CRU's Safe Electric brand for the duration of their appointment, 2016 – 2022.

2020

**SAFE ELECTRIC**  
**SPECIAL EDITION I.S.10101:2020**  
**NEWSLETTER**

# NSAI publishes new National Rules I.S. 10101:2020 for Electrical Installations



The revision programme took two years to complete and included a three-month public consultation from December 2018 to March 2019. Over 600 comments were submitted, and all were considered in detail by the committee.

The National Rules for Electrical Installations are essential for electricians, electrical contractors and designers as they specify the safety requirements for electrical installations in all types of premises in Ireland.

The revisions bring requirements in line with recent technical developments and best practice in Europe, including new technologies such as charging of electric vehicles, solar photovoltaic systems and guidance on energy efficiencies.

The National Standards Authority of Ireland's Standards Technical Manager, Yvonne Wylde, said the new document is an essential and invaluable reference point for designers and electrical installers, providing for the safety of electrical installations in homes, businesses, factories and farming communities across the country.

Ireland's new National Rules for Electrical Installations (Wiring Rules) have been published by the National Standards Authority of Ireland (NSAI). The document is the first major revision to the standard in over 10 years and is based on internationally agreed standards for safety of electrical installations.

The new standard, also known as I.S. 10101:2020, will replace ET 101:2008, and has been produced by industry experts who sit on the NSAI's Electro Technical Committee (ETC/TC 2) "Electrical Installations".

The standard includes requirements for design and installation of many types of installations, including housing, hospitals, agricultural buildings, caravans, construction sites, industrial premises and swimming pools.

*"Some of the key changes proposed in the new rules are that Residual Current Devices (RCDs) will now be required on lighting circuits in domestic premises, and Arc Fault Detection Devices (AFDDs) will be recommended for circuits installed in locations with particular risk, such as in premises with sleeping accommodation; or buildings made of combustible construction materials such as wooden buildings."* said Ms Wylde.

# Summary of the Key Changes

## • I.S. 10101 General

The layout and structure of the document differs from the current Wiring Rules. For example, what were previously known as “Parts” (i.e. Parts 1-7) in ET 101:2008 are being re-labelled as “Chapters” in I.S. 10101:2020. This change will serve to enhance readability of the document into the future.

## • I.S. 10101- Chapter 1: Scope

Chapter 1 is largely unchanged. The scope includes the fixed wiring installation right up to the electric socket or isolator. The requirements for appliances connecting into electrical sockets, or wired into isolators, are covered by separate standards, and not by the National Rules for Electrical Installations.

The document includes more detailed information on design of electrical installations and so will a very useful reference for design teams.

## • I.S. 10101- Chapter 2: Definitions

Definitions are now all contained in Chapter 2 to enhance readability. The definitions list has been expanded and certain definitions have been modified to align with the definitions provided in the International Electrotechnical Vocabulary.

## • I.S. 10101- Chapter 3: General Characteristics

This section has been expanded to cover different supply and earthing arrangements.

## • I.S. 10101- Chapter 4: Protection for Safety

### Clause 411.3.4

Residual Current Devices (RCDs) will now be required to be installed on lighting circuits in domestic premises.

### Clause 421.7

Arc Fault Detection Devices (AFDDs) will now be recommended for circuits installed in locations with particular risk, such as:

- in premises with sleeping accommodation;
- in locations with risks of fire due to the nature of processed or stored materials, i.e. BE2 locations, (e.g. barns, wood-working shops, stores of combustible materials);
- in locations with combustible constructional materials, (example = wooden buildings);
- in fire propagating structures;
- in locations with endangering of irreplaceable goods.

## • I.S. 10101- Chapter 5: Selection and Erection of Equipment

### Clause 512.1.5 Compatibility

The above Clause will require, on request, a sign off by the appropriate person, that the installation complies with the Electromagnetic Compatibility (EMC) Directive 2014/30/EU.

This applies only to the fixed wiring and switchgear, and not to any appliance connected after the isolator or socket.

### Clause 527 Selection and Erection of wiring systems to minimise the spread of fire

*The Clause requires all cables, as a minimum, to be rated Class Dca-s2, d2, a2 in accordance with I.S. EN 50575.*

### Clause 531.3.3 Types of RCD's

*Residual current devices (RCDs) Type AC are not recommended in new installations.*

Clause 534 Devices for protection against overvoltage

This is a completely new section; which provides details on the selection of Surge Protection Devices (SPDs) including wiring diagrams, especially where lightning protection will be installed in a building.

- **I.S. 10101- Chapter 6: Verification and Certification**

Chapter 6 has been revised to align with the European Standard. Model certificates have now been removed. As previously mentioned, CRU now oversees the inspection and verification process, and certificates are issued by Safe Electric.

- **I.S. 10101- Chapter 7: Special Installations or Locations**

The associated CENELEC 60364 series of HDs have been updated and this is now reflected in I.S. 10101:2020

### **Part 710 Installations in Medical Locations**

Part 710 has been revised to reflect changes in the European requirements (HD 60364-7-710:2012) and contains several changes including:

#### **Clause 710.411.6.3.101**

Now requires an assessment of “other electrical equipment” before being used in the patient environment.

#### **Clause 710.415.2.2**

Now requires the resistance of supplementary protective bonding conductors in group 1 as well as group 2 medical locations, to not exceed 0.2 Ohms.

#### **Clause 710.554.101**

Now requires the intended use of a medical location to be considered when deciding on the number of socket outlets to be protected by a single RCD.

#### **Clause 710.554.102**

Now requires that socket outlets of medical IT systems in group 2 locations be un-switched, coloured blue, and clearly and permanently marked “Medical Equipment Only”.

### **Part 712 Photovoltaic systems**

The requirements for these systems have expanded significantly.

### **Part 722 Supplies for Electric Vehicles**

Charging for Electric Vehicles was published as an amendment to ET 101:2008 in 2017. This section is now consolidated as Part 722 in Chapter 7 and is largely unchanged from the version released previously in ET 101:2008/A3:2018.

### **Part 730 Onshore Units of Electrical Connections for Inland Navigation Vessels**

This section is entirely new.

### **Energy efficiency (Annex 8)**

This section is entirely new and provides recommendations and guidelines on design and erection of electrical installations to optimise energy, including metering, load control and minimisation of losses in conductors.



**Q** Can I begin using IS10101:2020 immediately?

**A** Electrical installations may be designed and certified to the new standard from 1 April 2020.

**Q** Can I still use ET101:2008?

**A** It is recommended that all installations be designed to the new standard from 1 April 2020. However, whether an installation may be certified to the old standard depends on its date of design:

- Until 30 September 2020 (for the next six months), installations may be designed to the old standard, provided that
- Such installations are certified (to at least pre-connection) by 31 March 2022 (within 24 months of the transition)

If you are unsure whether the project will meet this deadline, you should design the installation to the new standard. It is the responsibility of the REC undertaking the works to ensure they are certifying the installation to the correct standard.

**Q** What is the date of the design? What documentation do I need to prove date of design?

**A** This is the date the electrical installation was designed. For large projects, this may take place at a planning stage prior to beginning construction. For smaller works, this may take place on the day of the installation.

The date of design of the installation may be proved in different ways, depending on the project. Safe Electric inspectors may accept reasonable proof of date of design, including:

On-site construction drawings with associated completed title blocks

Contracts associated with the electrical installation

Documentation validated through BC(A)R

It is the responsibility of the REC undertaking the works to maintain proof of date of design and to present this to their Inspector during inspection (or where queried by Safe Electric). Where the REC does not have documentation demonstrating the date of design, Safe Electric will require the installation to comply with the new standard.

Where the REC has a query as to what documents are acceptable, they should ask their local Inspector.

**Q** What is the date of certification?

**A** This is the date the electrical installation is certified to at least pre-connection stage.

Pre-connection stage means the installation is certified with a Certificate No. 1 or Certificate No. 2, in accordance with Common Procedure No. 1 of the CRU's Electrical Safety Supervisory Criteria Document (Version 3.0) of 22 April 2016 (CER/16/001).

A completion certification means the installation is and the REC has returned the appropriate post-connection certificate, including testing and verification results, in accordance with Common Procedure No. 1 of the CRU's Electrical Safety Supervisory Criteria Document (Version 3.0) of 22 April 2016 (CER/16/001).

**Q** I am designing a new installation. Which standard should I use?

**A** Electrical installations may be designed and certified to the new standard from 1 April 2020. It is recommended that all new electrical installations be designed and certified to the new standard from that date.

From 1 October 2020, all new installations must be designed to the new standard.

Until 30 September 2020, electrical installations may be designed to the old standard. However, such installations must be certified (to at least pre-connection) by 31 March 2022. If you are unsure whether the project will meet this deadline, you should design the installation to the new standard.

**Q** I am already working on an installation designed to ET101:2008, but it is not yet certified. What do I need to do?

**A** Where works have started on electrical installations that are designed to the old standard, these installations must have pre-connection certificates completed by 31 March 2022. Otherwise, they will need to be brought into compliance with the new standard before being certified.

**Q** I am already working on an installation designed to ET 101:2008, and a pre-connection certificate has been issued. What do I need to do?

**A** Where a current electrical installation is designed to the old standard and a pre-connection certificate has been issued, The Post Connection Test shall be carried out within 35 days according to the same standard as Pre-connection phase of the certification.

**Q** What about installations wired to previous editions of the National Rules for Electrical Installations?

**A** Existing electrical installations that have been installed in accordance with earlier editions of the National Rules for Electrical Installations may not comply with IS 10101:2020. This does not necessarily mean that they are unsafe for continued use or require upgrading. However, the CRU and Safe Electric recommend that all reasonably practicable steps should be taken to bring such systems into conformity with the new standard.

**Q** I have further queries regarding IS10101:2020

- A**
- RECs with questions regarding installations and certification should direct their questions to their Safe Electric Inspector. Where the Inspector requires clarification, they will consult with the Safe Electric Manager.
  - Customers with questions regarding installations, certification, and electrical safety should direct their questions to [info@safelectric.ie](mailto:info@safelectric.ie).
  - Technical queries regarding IS10101:2020 should be directed to the NSAI at: [www.n sai.ie](http://www.n sai.ie)
  - Queries regarding regulation by the CRU should be directed to [SSBTeam@cru.ie](mailto:SSBTeam@cru.ie).

**Q** Can I construct and certify an installation using a combination of both standards

**A** No, During the transition period installations must be constructed and certified to either ET 101:2008 within the allowed timeframe or IS10101:2020.

# Safe Electric Roadshows 2020

Information sessions on I.S.10101:2020

The start of 2020 brings a number of key developments in the industry for all Registered Electrical Contractors.

To help understand what these changes mean to you, your staff and your business, Safe Electric will be holding a number of roadshows across Ireland.

Don't miss your chance to learn about I.S. 10101:2020 and understand the potential impact to your business. All questions welcomed!

Start 2020 by being informed, with advice you can trust from Safe Electric.

We hope to see you soon.



Doors Open at 16:00  
Seminar Talks Start  
at 17:00 until 19:00

| VENUE  | DATE                        |
|--|-----------------------------|
| Shearwater Hotel, Marina Point, Ballinasloe, Co Galway, H53 F5P9 | Tuesday 21st April 2020     |
| Gleneagles Hotel, Muckcross Road Killarney, Co Kerry, V93 V6WF   | Thursday 30th April 2020    |
| City North, Gormanstown, Co Meath, K32 W562                      | Wednesday 6th May 2020      |
| Sligo Park Hotel, Sligo, F91Y762                                 | Wednesday 13th May 2020     |
| Clayton Silver Springs Hotel, Tivoli, Cork, T23 E244             | Wednesday 27th May 2020     |
| Citywest Hotel, Saggart, Co. Dublin, D24 KF8A                    | Tuesday 22nd September 2020 |

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## I.S. 10101:2020 Top 10 Rule Changes

|  |   |
|--|---|
| <b>Clause 527.0</b>                      | <p>For all buildings, cables shall as a minimum meet the requirements of Class Dcd S2,d2,a2 or higher in accordance with I.S. EN 50575. In addition, cables shall be tested in accordance with I.S. EN 61034-2 and the smoke generated shall result in transmittance values of not less than 60%.</p> |
|  | <p><i>All cables installed in every installation which will be certified to IS10101 must as a minimum comply with the Class Dcd S2,d2,a2 standard. The standard should be clearly identified on the cable reel or drum. It will not necessarily be identified directly on the cable.</i></p>          |
| <b>Clause 411.3.4<br/>(extract)</b>      | <p><b>Additional requirements for circuits with luminaires</b><br/> <b>Additional protection by an RCD with a rated residual operation current not exceeding 30 mA shall be provided for a.c. final circuits supplying luminaires in domestic premises.</b></p>                                       |
|  | <p><i>All lighting circuits in domestic premises are required to be RCD protected. The ideal solution to this requirement is a separate RCBO on each lighting circuit.</i></p>  |
| <b>Clause 530.6.2.4<br/>(extract)</b>    | <p><b>A distribution board shall not be installed in the following locations</b></p> <ul style="list-style-type: none"> <li>- Under timber staircase</li> <li>- Where it may be covered by garments or similar articles</li> <li>- In a bathroom</li> </ul>   |
|  | <p><i>The previous rules did not allow a Distribution Board in Storage or Airing cupboards or in a washroom or WC. These locations are allowed under IS10101</i></p>  |
| <b>Clause 530.6.2.3<br/>(extract)</b>    | <p><b>A wall mounted distribution board shall be mounted at a height not greater than 2.15 m measured from the floor to the top of the highest protective device.</b></p>   |
|  | <p><i>This is a change from the previous rule in that the height restriction 2.15m is lower but the measuring point is not the top of the board, but the highest MCB, RCBO, FUSE or RCD.</i></p>  |
| <b>Clause Removed<br/>ET1010:544.2.8</b> | <p><i>The rule requiring kitchen sinks to be bonded has been removed.</i></p>   |
| <b>Clause 6.4.3.3.2<br/>(extract)</b>    | <p><b>Detection of erroneous connections between circuits</b><br/> <b>Where it is not practicable to disconnect all loads, the erroneous test may also be made using a voltage tester following energization of the installation</b></p>  |
|  | <p><i>The erroneous test can now be carried out using the voltage method at the post connection stage. This eliminates the possibility of incorrect readings through the neutrals of loads which are switched in.</i></p>   |

## I.S. 10101:2020 Top 10 Rule Changes

|   |  |
|---|--|
| <p><b>Clause 421.7 (extract)</b></p>                    | <p>It is recommended that special measures be taken to protect against the effects of Arc faults in final circuits</p> <ul style="list-style-type: none"> <li>- in premises with sleeping accommodation</li> </ul>   |
|   | <p><i>This obviously includes electrical installations in domestic premises. Therefore, IS10101 recommends Arc Fault Detection (ARD) in domestic premises.</i></p>   |
| <p><b>Clause 531.3.1.1 &amp; 531.3.3 (extracts)</b></p> | <ul style="list-style-type: none"> <li>• A residual current device shall ensure the disconnection of all live conductors of the circuit protected. The use of Type AC RCDs is not recommended.</li> <li>• Different types of Residual Current Devices (RCDs) exist depending on their behaviour in the presence of d.c. components and frequencies other than the rated frequency</li> </ul> <p>RCD types AC are not recommended in new electrical installations</p> |
|   | <p><i>It is a recommendation that type AC RCDs are not installed in new installations.</i></p>   |
| <p><b>Clause 705.55.1 (extract)</b></p>                 | <p><b>Socket-outlets of agricultural and horticultural premises shall comply with:</b></p> <ul style="list-style-type: none"> <li>- I.S. 411 or BS 1363-2 as appropriate provided the rated current does not exceed 20 A and installed in a location to suit the environment</li> </ul>  |
|   | <p><i>Standard 13-amp socket outlets may now be installed in an Agricultural Installations. We would expect that this would normally require the installation of a suitable I.P rated outlet.</i></p>  |
| <p><b>Clause 53.3.3.2.3 (extract)</b></p>               | <p><b>Main overcurrent device for domestic and similar installations</b></p> <ul style="list-style-type: none"> <li>- f) A Type C MCB may be used as the main overcurrent protective device, providing it complies with the maximum fault-loop impedance value <math>Z_s</math> in Table 41.3</li> </ul>   |
|   | <p><i>If a Type C MCB is used as the MOD the fault loop impedance must be measured at the device to confirm it complies with the Table. For a 63-amp MCB the Maximum value allowed will be 0.36 of an ohm.</i></p>   |

**It is the role of Safe Electric to ensure that all Registered Electrical Contractors (RECs) are operating to the relevant national standards and technical rules. This includes inspecting their work on an ongoing basis and carrying out disciplinary actions where necessary.**

**Safe Electric hold a register of all RECs. Safe Electric is responsible for the day-to-day operation of the scheme.**

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