



SAFE ELECTRIC Newsletter

Cork Man Given Criminal Conviction and Fined €4,000 for Illegally Undertaking Electrical Works



The Commission for Regulation of Utilities (CRU), on 22 May 2019, secured a criminal conviction against Mr. Frank Power of Kildinan, Co. Cork, for illegally carrying out designated electrical works without being a registered electrical contractor (REC) with Safe Electric.

The District Court in Cork heard evidence that the electrical works were not in accordance with the National Wiring Rules and had the potential to cause serious injury to the homeowner and his family. In addition, it was noted Mr. Power was uncooperative with the investigation and refused to attend for interview in relation to the investigation on three separate occasions.

Judge Con O’Leary fined Mr Power €3,000 for the offences of illegally undertaking designated electrical works and describing himself in a manner likely to suggest he was registered. He also ordered him to pay costs of €1,000 plus VAT to the CRU.

It is illegal for an individual or company to carry out Restricted Electrical Works or to portray themselves as registered, unless they are a REC with Safe Electric. The penalties for non-compliance include a fine of up to €15,000 and/or imprisonment for up to 3 years. Members of the public who wish to report an unregistered individual who has undertaken electrical works or has portrayed themselves as a REC should visit www.safeelectric.ie.

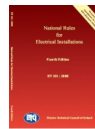
The CRU’s mission in this area is to protect life and to prevent injury. It investigates all reports of alleged breaches of the legislation.

The CRU’s Commissioner for Energy Safety and Chairperson, Dr. Paul McGowan said: *“This prosecution sends out a clear message to both unregistered electrical contractors and consumers. Always ask your electrician if they are a Safe Electric Registered Electrical Contractor before they commence electrical work in your home and request a certificate of completion for any work carried out.”*



A disciplinary session took place at the headquarters of Safe Electric, Dublin on the 25th June last. Five ‘Registered Electrical Contractors’ were brought before the disciplinary committee for serious ET101 and CRU rule breaches. The majority of the issues were based around the lack of testing, leaving customers with dangerous installations, and for the certification of works undertaken by others. Sanctions were applied in all five cases.

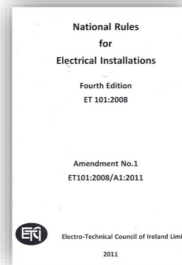
Have you got all of the amendments for ET101 4th Edition ?



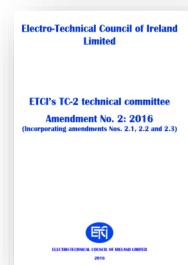
Inspectors are still finding that some REC’s do not have all of the amendments for ET 101 ‘National Rules for Electrical Installations’. There have been a total of three amendments. Please ensure that you are up to date. Amendments 1 and 2 are available as a free download on our web site.

safeelectric.ie/contractors/amendments-national-rules-electrical-installations-et101/

Amendment 1



Amendment 2



Amendment 3



Amendment 3 came into force 31st May 2018. It covers the requirements for ‘Supplies for Electric Vehicles’ (722) This amendment can be purchased from SAI Global shop (€10.00) on Tel: 01 8576730 or via the link below

shop.standards.ie/en-ie/Standards/ET-101-2008-A3-2018-1132705_SAIG_ETCI_ETCI_2734977/

Please ensure that your rule book includes all of the above amendments.

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Message from NSAI concerning the “National Rules for Electrical Installations” - IS 10101 20xx

NSAI wishes to thank everyone who submitted comments on the draft “National Rules for Electrical Installations”, for which the public consultation closed on the 15th March 2019.

We received over 700 comments on the draft and NSAI ETC TC2 (i.e. the National Wiring Rules Committee) in conjunction with relevant stakeholders continue to review these comments, with a view to adding more value to the final publication.

Given the number of comments received on the draft IS10101, NSAI is now working towards Q4 2019 for publication of the new standard.

We would like to express thanks again to everyone who contributed to the public consultation process and we look forward to meeting you at the launch event roadshows.



The upcoming launch of the IS10101 (5th Edition) National Rules for Electrical Installations will be an important time for every electrician across the country. Due to this, we have decided to wait until the final publication date is available before we release ‘Roadshow’ dates. These countrywide roadshows will highlight all of the major changes that will be implemented and enforced approximately 6 months after the IS10101 is published. At this stage, we see no point in covering articles on the proposed changes to IS10101. The whole document is currently being reviewed based on comments and feedback received, meaning some of the proposed changes may or may not go ahead?

We will keep you updated via Newsletters / Newsflash flyers/ web site etc.

Why do we need new wiring rules ?

To maintain technical alignment with CENELEC Harmonisation Documents (HDs), this is an on-going process. As with any profession, there are advancements and new methods of working developed, and with this, new safety measures need to be in place to reflect the changes in installation practice. Once a HD is agreed at CENELEC, Ireland and other countries are required to incorporate the technical intent into their national standards. The proposed changes to IS10101 will also have a strong focus on fire safety.

Currently, with government energy policies, the electrical industry is developing so rapidly that new technologies are being introduced on an almost monthly basis, EV charging, PV, heat pumps to name a few. Installations need to be following the safest methods possible.

The forthcoming rules will now have a section on energy efficiency. This is already an important factor for most electricity customers, coupled with governmental and worldwide policies to reduce carbon emissions. The IS10101 will cover the installation and calculation of energy efficiency within installations and appliances. Including the calculation of the accumulated efficiency points, which are awarded based on performance level and efficiency.

Frequently Asked Questions

Q1 - Can I connect a separate oven and hob on the supply cable?

A. Yes, rule 555.2.1 permits this. Providing each appliance has isolation within 2mts (Can be one common isolator). This may not always be practical as hobs are often about 6 Kw rated and ovens may be less than 3Kw. Please ensure that they are installed to the manufacturer’s recommendations and all cables and appliances are suitably protected.

Q2 - Do I need to fit a seal at the isolator when I have connected the mains tails at the meter location.

A. Yes, this is a CRU requirement. The DSO (ESB) normally leave isolator in the open position once energised. Once you have connected and correctly terminated your tails then you must reseal the isolator. This protects you in the event of someone else tampering with the connections, leaving them loose and leaving a potential hazard behind. Seals are available from Safe Electric. Inspectors will breach you, if the seal is not fitted.

Q3 - Can I make connections inside trunking?

A. No, Rule 526.2.3 states: Wiring connections shall not be made inside trunking.

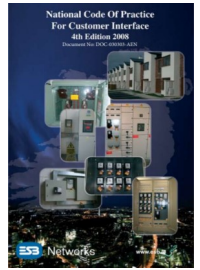
Note: Proprietary wiring systems forming part of a trunking design are exempt from this requirement.

Q4 - Do I need to bond freestanding metal work tables?

A. No, These tables will not introduce a potential. They are therefore not considered to be ‘Extraneous Conductive Parts’

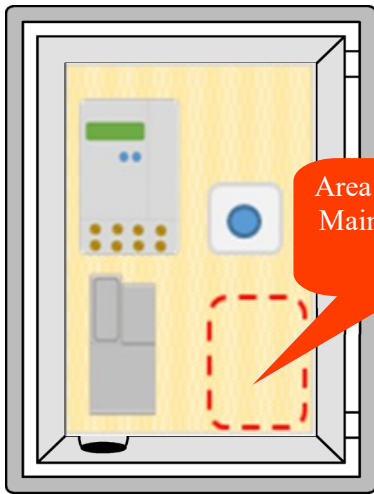
Q5 - I have been asked to replace a distribution board in an existing installation, do I need to test the existing final circuits?

A. Yes Annex 63 B states: *All protective devices fitted to the replacement distribution board should be correctly selected to provide the required protection for existing circuits and any new circuits, in accordance with the current Rules. This should be verified in the same way as for a new installation, i.e. by tests for fault-loop impedance and RCD operation as specified in Chapter 61 of the Rules.* A ‘Test Record Sheet’ should be completed with details of the existing circuits.



An Outside Meter box is provided by the customer for ESB Networks to install their equipment for the connection to that customer.

In both the National Code of Practice for Customer Interface (ESBN) and the National Wiring Rules (NSAI), the REC is allowed to install the customer's Main Overcurrent Protective Device (MOD) in the bottom right hand corner of the box.



Area for Customer Main Overcurrent Device



Again we are highlighting problems we are finding on domestic installations when interfacing with the ESB, below is the rule requirement when the Main Overcurrent device is located in the meter cabinet.



(533.3.5) A main overcurrent protective device may be located within a standard meter cabinet, in which case it shall comply with the following requirements:

- a) The protective device shall be an MCB.
- b) In the case of installations having a maximum import capacity (MIC) less than 50kVA, the MCB shall have a rated short-circuit breaking capacity of at least 9kA.
- c) The MCB shall be located in a weatherproof enclosure having a degree of protection IP55 and made of non conducting self-extinguishing material (750°C).
- d) A hinged transparent cover shall provide access for operating the MCB. Access to live terminals shall be only by means of a tool or key.
- e) The enclosure shall be mounted only at the bottom right-hand side of the meter cabinet, and sufficient space shall be allowed for mounting additional equipment by the DSO as the need may arise.

SPOT THE RULE BREACHES!



There is a ESB issue here as an isolator has not been provided, please report this to the ESB if you come across this type of connection. Also the Main Overcurrent device should have been located tighter in the right hand corner as we are finding in some areas a CT enclosure is being fitted and room gets very tight.

Space can get tight as shown in this picture. The Main Overcurrent Device (MOD) is incorrectly located. Please inform the ESNB if they have incorrectly located their isolator. Please ensure that you have located your MOD prior to submitting your pre connection cert.

ONLY the phase conductors should pass through the MOD enclosure.

You **MUST** seal the isolator / meter once your connections are made. This is to help protect you in the event of an incident that may be caused by a loose connection. Please ensure all connections are checked for tightness.



Guideline for the selection of single phase 'Meter Tails'

Supply	DSO FUSE	Max Main overcurrent device (MCB)	Min CSA of 'Tails' (copper) <i>Consideration needs to be given to the cable length and installation method.</i>	Min Main Protective Conductor (copper)	Min Earthing Conductor size (copper)	Min Main Bonding Conductor size (copper)
12 kVA	80A	63A	16mm ²	16mm ²	10mm ²	10mm ²
16 kVA	100A	80A	25mm ²	16mm ²	16mm ²	10mm ²
20 kVA	125A	100A	35mm ²	16mm ²	16mm ²	10mm ²
29 kVA	160A	125A	35mm ²	16mm ²	16mm ²	10mm ²

Cable Colours

Inspectors are still coming across installations where incorrect cable colors are being used. Basically, any multicore cable up to 5 cores the correct colors MUST be used. This includes flex, NYMY, twin and earth and SWA. Rules clarified below:

514.3.2 A neutral or mid-point conductor shall be identified by the colour **blue throughout its length.**



514.3.6 Identification of conductors in multi-core cables for a.c. circuits

Multi-core fixed cables, flexible cables and cords having from **two-to- five** conductors used for a.c. circuits shall comply with the following:

a) Line/phase conductors shall be identified **throughout their length** by the colours brown, black or grey.



b) A conductor identified by the colour blue shall be used **only** as a neutral or mid- point conductor. [SNC]



c) A conductor identified by the bi-colour green-and-yellow shall be used **only** as a protective conductors

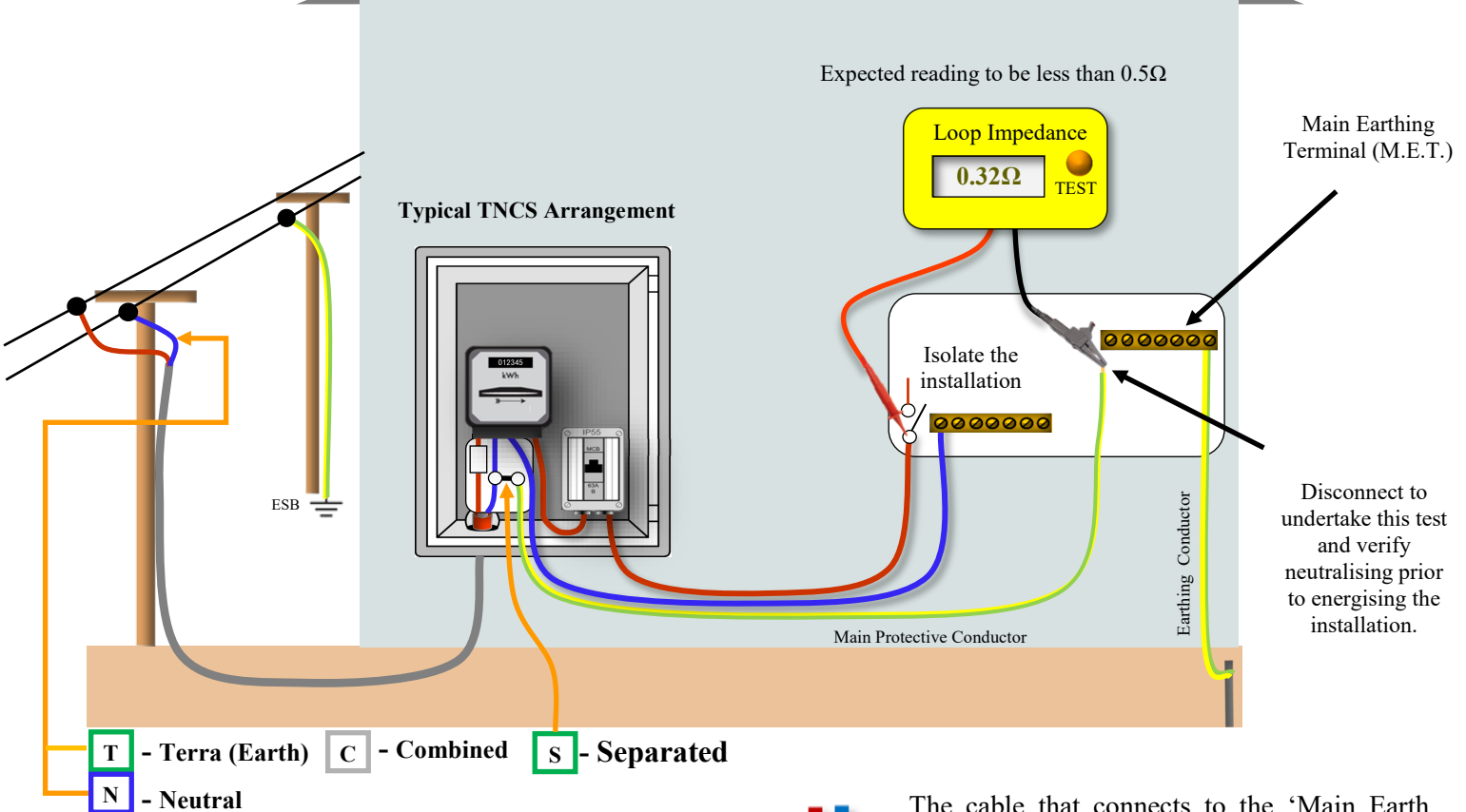


FOCUS ON NEUTRALISING

What is TN-C-S?

Visually check the 'Neutralising' connection.

Typical New Domestic Arrangement



Almost the entire country uses the TNCS wiring system. (Terra Neutral Combined & Separate). With this system, on the ESB's side of the installation i.e. before the electricity meter the Neutral and Earth are combined into one conductor. On the Customer side i.e. after the electricity meter the Neutral and Earth are separated into two conductors.

The point where the customers neutral and earth separate into two conductors is commonly called 'Neutralising Point'. In domestic and similar type installations this is carried out at the metering location. On larger installations this is often undertaken within the main intake panel.

In modern installations the ESB provides a suitable terminal for neutralising. It is the responsibility of the Registered Electrical Contractor to ensure that this is undertaken.

In older systems this link can only be made on the sealed side of the ESB equipment usually into the neutral at the meter or cut-out, meaning neutralising cannot be installed without breaking the ESB seals. Because only ESB authorised personnel can cut and replace these seals, the neutralising in older installations can only be connected by ESB personnel.



The cable that connects to the 'Main Earth Terminal' is called the 'Main Protective Conductor'. When the Registered Electrical Contractor connects a new installation to the ESB network, he is required to connect the Live and Neutral into the ESB supply and the Main Protective Conductor into the Neutralising terminal.

Our experience shows that in general it usually takes at least 2 defects for an electrical incident to happen. If an installation is not neutralised this would be the first defect. A faulty accessory, damage to the cable or faulty appliance with no earth path to ensure that the protective device operates could be the 2nd. We cannot over stress the importance of testing.

It is essential that the neutralising is verified prior to starting any work on an existing installation. If a problem is identified, new works should not progress until rectification works are undertaken. In the event that owner of the premises does not agree to the undertaking of these works then a Notice of Potential Hazard should be issued. In the case of an older installation where the ESB seals need to be cut, the contractor should contact ESB Networks on 1800 372999 and report it as a fault. As no actual installation work has been carried out, there is no requirement to issue a completion certificate and there should be no charge from the ESB.

Focus on EV Charging

As electric vehicle charge points become more widespread due government policy and the influx of new EV's into the country the regulations for electrical installations need to adapt to meet this new technology. In a very short space of time home chargers in the 3 to 11kW range have become more than a simple external socket. Technology such as load balancing, external communications and DC to AC feeding from various sources is becoming more mainstream.

It is important to keep informed about these new features however it is as equally important not to lose sight of keeping with the standards of good installation practice. It is good practice for new installations to either install ducting or cables to a charging location to future proof the property.

Amendment 3 (722) of ET101 covers requirements for supplies of electric vehicles.

Listed below are some tips and rules when installing an EV charging point:

A dedicated circuit shall be provided for the connection to electric vehicles (722.314.101)

The final circuit earthing system must be that of a TN-S system (722.312.2.1).

Full, complete and appropriate mechanical protection to be installed (722.512.2.103)

Pre assessment **must** be carried out to ensure that the incoming tails are that of a size and standard suitable not only for the installation but also to carry the additional load of the new car charger. Diversity cannot be applied for a single socket (unless load control is available 7522.311). Annex 63B details the requirements for alterations to existing installations.

Cable size for the final circuit must be appropriate to the charger; also considering for volt-drop.

Currently all chargers must be fitted with an RCD B-Type or A- Type appropriate with suitable overcurrent protection (722.531.2.101). It should be noted that the A- Type allows for D.C. fault protection – see regulations notes.

The client must be presented with a competition certificate for the installation along with any manufacturers documents for warranty or function purposes. Cert 3 is usually the most suitable unless the supply or meter tails need to be upgraded.

Load monitor devices should be tested to ensure that the load of the charger is varying in relation to the load on the installation. While all the mandatory testing and verification should be carried out in accordance with the wiring rules charger mechanical tests should be carried out to test the functionality of the installation. A test kit can be purchased, or in some cases rented, from most electrical wholesalers. This will simulate a vehicle and enable testing to be undertaken. It is also worth noting that some form of local isolation and further protection are currently under review and will be added to in the new edition of the wiring rules . See Safe Electric installation advice below:

Do:

Locate, where the lead will not be a trip hazard when the car is charging

Locate away from large pets (a dog could chew the charging cable?)

Install in a well lit area (consider installing lighting if required)

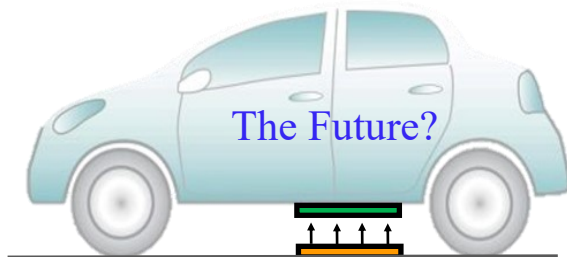
Install an isolator for maintenance and emergency switching

Install to manufacturers recommendations

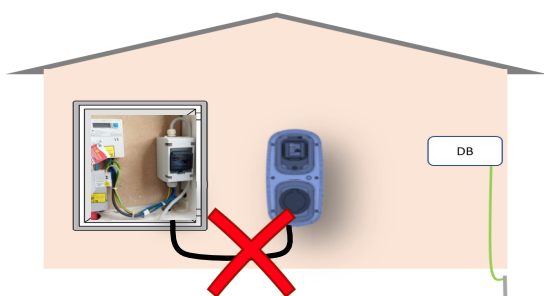
Ensure that the existing supply and earthing arrangement is suitable

Ensure that some form of load control is in place if heavy loads like showers heat pumps etc. are installed in the installation.

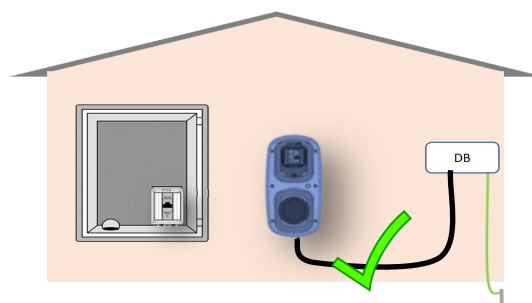
Inspectors have come across a number of very poor installations, like undersized cables, NYMJ/T&E clipped direct with no mechanical or solar protection, (SWA or steel conduit would be the preferred wiring type). IP rating not maintained, existing installation overloaded and the supply being taken from the metering point.



Inductive charging has been developed by a number of car manufacturers, but is as yet not mainstream. 722.1 states that inductive charging is not covered in the rules. Who knows if this will change in the future?

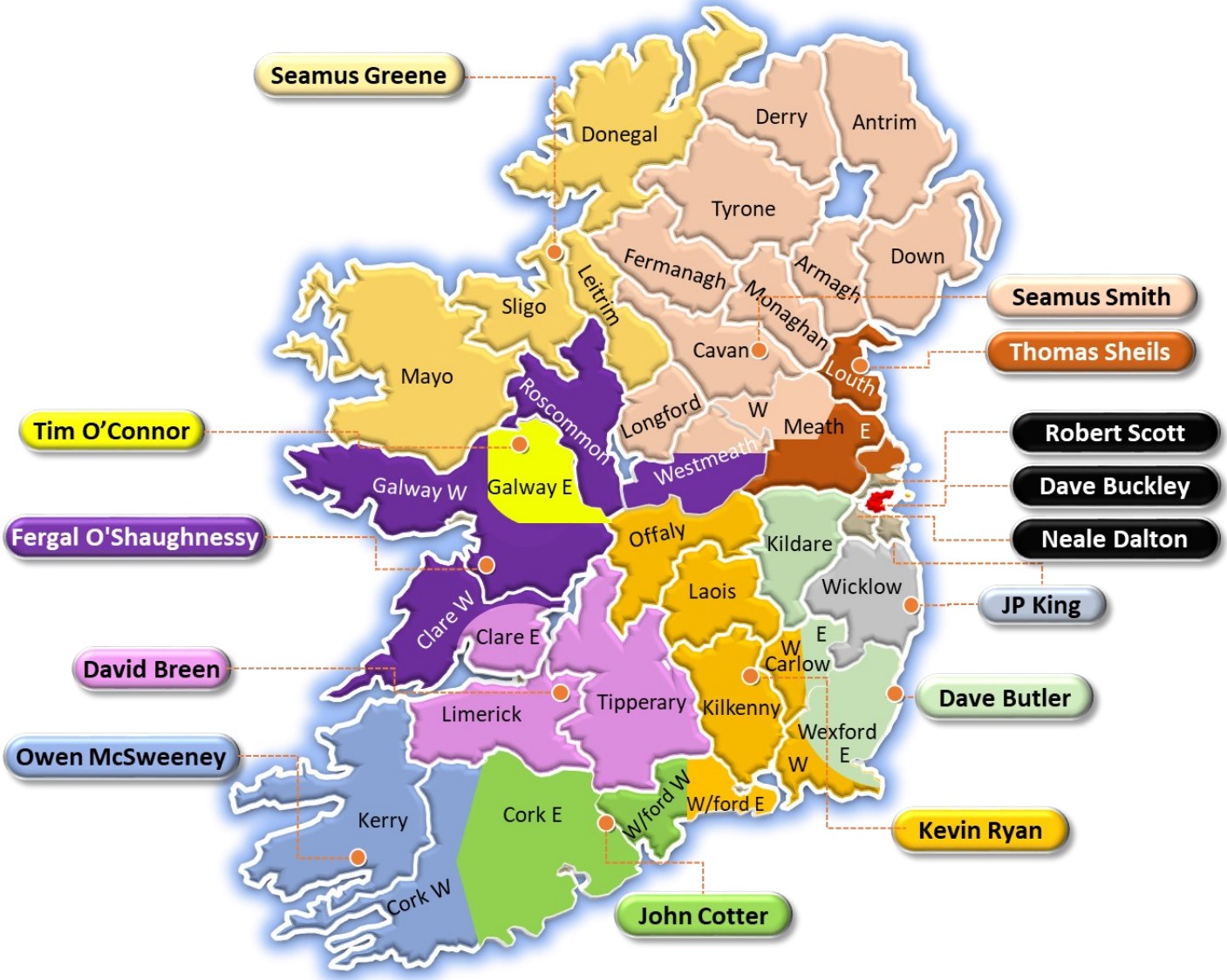


Installation of the protective device for the final circuit is not currently permitted in the external meter cabinet.

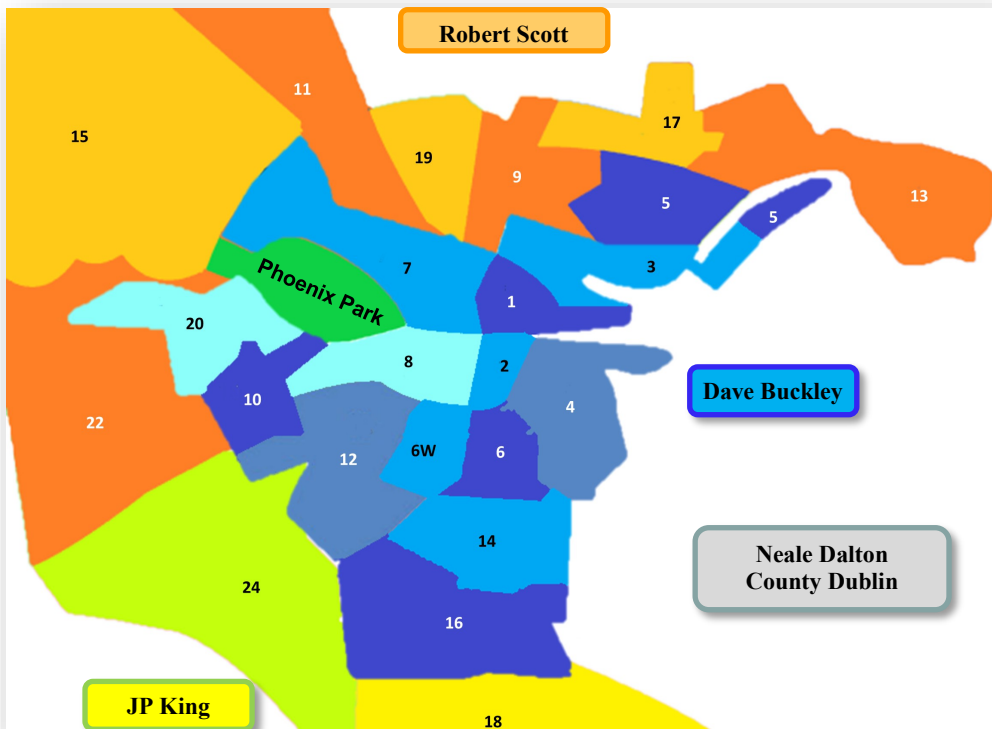


Final circuit for EV charging points must originate from a suitable distribution point.

2019 Safe Electric Inspector Areas



Dublin Inspector Areas



Inspectors
Dave Buckley 087 6461523
Dave Butler 087 771 2113
David Breen 087 230 1271
Fergal O'Shaughnessy 087 148 4828
John Cotter 087 926 2988
JP King 087 090 8496
Kevin Ryan 087 090 8434
Neale Dalton 087 382 4260
Owen McSweeney 087 230 1270
Robert Scott 087 142 3895
Seamus Greene 087 130 8304
Seamus Smith 087 230 1275
Thomas Sheils 087 694 3643
Tim O'Connor 087 265 6694

**FREE
ADMISSION**



Safe Electric will have an information and demonstration stand at this event. We will also be giving an update talk on the forthcoming IS10101 (5th Edition) wiring rules.

Safe Electric inspectors will be on hand to give advice and information. We will also have 'Test Rigs' available to demonstrate 'hands on' testing.



Free Tea, Coffee and Biscuits
(sponsored by WEEE Ireland)



This event is an excellent chance to meet a number of leading suppliers and keep up to date with an industry that is seeing huge changes and opportunities. Please try to attend this event to get the correct information, first hand.

Please see a list of confirmed exhibitors at the time of producing this Newsletter (more to follow)



Accredited Verification & Certification Course Providers

Listed below are course providers where you can obtain a QC number

Centre Name	Address	Contact
Alva Fusion Ltd	Unit 9, Tallaght Enterprise Centre Main Road Tallaght Dublin 24 D24 KC62	085 8783065 Info@Alvafusion.ie
Designer Group Training Academy	52 Nore Road Dublin Industrial Estate Dublin 11 D11 V667	01 960940 / 0877477487 seanpurcell@designergrp.com
Future Skills Ireland Ltd	47B Keeper Road Drimnagh Dublin 12	01 5324058 info@futureskillsireland.ie
iSkill Training	12A & B Bluebell Business Park Old Naas Road Dublin 12	01 4242440 info@iskill.ie
METAC Ltd	Mountrath Enterprise Park Portlaoise Road Mountrath Co. Laois	057 8756540 info@metac.ie
Waterford Wexford Training Services, WWETB	Waterford Industrial Estate Cork Road Waterford X91 PX02	051 301500 (Waterford) 053 9143602 (Wexford) infotraining@wwetb.ie
ECSSA	Coolmore House Park Road Killarney Co. Kerry	064 6637266 info@ecssa.ie
Cavan & Monaghan Education & Training Board	CMETB FET Campus Dublin Road Cavan	049 4353906 / 4353923 EdelCoyle@cmetb.ie