



**NSAI**  
Standards

Irish Standard  
I.S. 10101:2020/AC1:2020

# National Rules for Electrical Installations - Corrigendum 1:2020

© NSAI 2020

No copying without NSAI permission except as permitted by copyright law.

## I.S. 10101:2020/AC1:2020

*Relationship with other documents and/or  
Incorporating amendments/corrigenda issued since publication:*

		Published	Withdrawn
Corrects	I.S. 10101:2020	06/03/2020	

The National Standards Authority of Ireland (NSAI) produces the following categories of formal documents:

I.S. xxx: Irish Standard – national specification based on the consensus of an expert panel and subject to public consultation.

S.R. xxx: Standard Recommendation - recommendation based on the consensus of an expert panel and subject to public consultation.

SWiFT xxx: A rapidly developed recommendatory document based on the consensus of the participants of an NSAI workshop.

This document was published  
under the authority of the NSAI  
and comes into effect on:  
30 October, 2020

ICS number:  
29.020  
91.140.50

**NSAI**  
1 Swift Square,  
Northwood, Santry  
Dublin 9

T +353 1 807 3800  
F +353 1 807 3838  
E standards@nsai.ie  
W NSAI.ie

**Sales:**  
T +353 1 857 6730  
F +353 1 857 6729  
W standards.ie

Údarás um Chaighdeáin Náisiúnta na hÉireann

# I.S. 10101:2020, National Rules for Electrical Installations

## Corrigendum 1

**Recommendation:** Those who have copies of this standard where the corrigendum is not included, are advised to hand write these corrections (excluding the tags **AC1** **AC1**) into the relevant places.

### Foreword

Updated table as follows:

HD 60364-5-56	2010+A1+A11	<b>AC1</b> Safety Services <b>AC1</b>
---------------	-------------	---------------------------------------

### Page 10

Add Contents title:

### **AC1** Contents **AC1**

#### 131.2.2 Fault protection (protection against indirect contact)

Number the NOTES as follows:

NOTE **AC1** 1 **AC1**

NOTE **AC1** 2 **AC1**

### 20 Terms and definitions

#### calculated risk level

##### CRL

Add the following text before IEC 60364-4-44:2007+AMD1:2015, 443.3.5

**AC1** SOURCE: **AC1**

#### high-density livestock rearing

Renumber 2nd note:

Note **AC1** 2 **AC1** to entry: Examples of high density ...

#### rated impulse voltage

Definition in twice, delete 2<sup>nd</sup> entry.

#### residential park home

Definition in twice, delete 2<sup>nd</sup> entry.

#### Figure 3A.31B2 – TN-C-S system 3-phase, 4-wire where the PEN is separated into PE and N at the origin of the installation

Number the NOTES as follows:

NOTE **AC1** 1 **AC1**

NOTE  $\overline{AC_1}$  2  $\overleftarrow{AC_1}$

**Table 41.2 — Maximum values of fault-loop impedance  $Z_s$  for 230 V a.c. circuits with ratings not exceeding 35 A maximum disconnecting time: 0,4 s (Table 41.1)**

Renumber NOTE 3 and subsequent NOTES:

NOTE  $\overline{AC_1}$  2  $\overleftarrow{AC_1}$

NOTE  $\overline{AC_1}$  3  $\overleftarrow{AC_1}$

NOTE  $\overline{AC_1}$  4  $\overleftarrow{AC_1}$

NOTE  $\overline{AC_1}$  5  $\overleftarrow{AC_1}$

**Table 41.3 — Maximum values of fault-loop impedance  $Z_s$  for 230 V a.c. circuits with ratings exceeding 35 A Maximum disconnecting time: 5 seconds**

Renumber NOTE 3 and subsequent NOTES:

NOTE  $\overline{AC_1}$  2  $\overleftarrow{AC_1}$

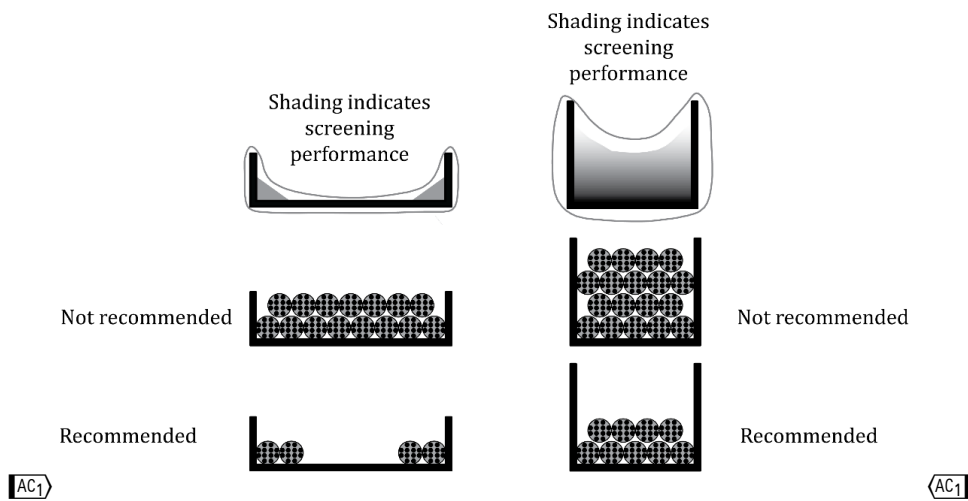
NOTE  $\overline{AC_1}$  3  $\overleftarrow{AC_1}$

NOTE  $\overline{AC_1}$  4  $\overleftarrow{AC_1}$

NOTE  $\overline{AC_1}$  5  $\overleftarrow{AC_1}$

**Figure 44.R16 – Cable arrangements in metal cable trays**

Replace "Not recommended" with "Recommended" for bottom two trays as follows:



**411.5.3 – Equation 411.2**

Replace " $I_{\Delta n}$ " with " $I_{\Delta n}$ " as follows:

$$\overline{AC_1} R_A \times I_{\Delta n} \leq 50 \text{ V } \overleftarrow{AC_1}$$

**411.6.4 – Equation (411.7)**

Replace " $Z_s$ " with " $Z'_s$ " as follows:

$$\boxed{\text{AC1}} 2I_a Z'_s \leq U_0 \boxed{\text{AC1}}$$

#### 444.4.6.1 General requirements

In NOTE delete reference to Figure 44.R7A.2:

NOTE This deviates from the requirements of Part 1 since if multiple earthing of the star points of the sources of supplies is applied, neutral conductor currents may flow back to the relevant star point, not only via the neutral conductor, but also via the protective conductor  $\boxed{\text{AC1}}$  as shown in Figure 44.R7A.2.  $\boxed{\text{AC1}}$

### Annex 42B

Delete the number after the NOTE as follows:

NOTE  $\boxed{\text{AC1}}$   $\pm$   $\boxed{\text{AC1}}$  Fire Ignition by arc...

### 521.8.3

Delete reference to 537.2.1.3:

NOTE See also Clauses 411 526.5,  $\boxed{\text{AC1}}$  and 528.1 and ~~537.2.1.3~~  $\boxed{\text{AC1}}$ .

### 531.3.2

Replace reference to "534.2.6" with "534.4.7" in last bullet point as follows:

— coordination of residual current devices (RCDs) with surge protective devices (SPD) according to  $\boxed{\text{AC1}}$  534.4.7  $\boxed{\text{AC1}}$ .

### 533.3.2.3

In 2<sup>nd</sup> paragraph change reference from Figure 53.2 to Figure 533.2:

A main overcurrent protective device may be located within a standard meter cabinet (see Figure  $\boxed{\text{AC1}}$  533.2  $\boxed{\text{AC1}}$ ), in which case it shall comply with the following requirements:

#### 534.4.4.4.2 Type 1 SPDs

Re letter the bullet points below where indicated:

$\boxed{\text{AC1}}$  a)  $\boxed{\text{AC1}}$  Where no risk analysis according to I.S. EN 62305-2 ....

....

$\boxed{\text{AC1}}$  b)  $\boxed{\text{AC1}}$  Where the risk analysis according to I.S. EN 62305-2 ....

### 542.2.3

Re letter 2<sup>nd</sup> bullet point a) to b) and adjust subsequent bullet point letters:

$\boxed{\text{AC1}}$  b)  $\boxed{\text{AC1}}$  soil-embedded foundation earth electrode;

$\boxed{\text{AC1}}$  c)  $\boxed{\text{AC1}}$  metallic ...

$\boxed{\text{AC1}}$  d)  $\boxed{\text{AC1}}$  ...

**AC1** e) **AC1** ...

## **542.2.6**

*In NOTE delete reference to "541.3.9":*

NOTE This requirement does not preclude the protective equipotential bonding via the main earthing terminal **AC1** (542.9) **AC1** of such pipes for compliance with Part 41.

## **542.3.1**

*In paragraph 5 include text*

An earthing conductor shall have a cross-sectional area complying with Table 54A.7. An earthing conductor buried in the ground shall have a cross-sectional area complying **AC1** with Table 54A.9. **AC1**

## **543.2.1**

*Delete the number after the NOTE as follows:*

NOTE **AC1** 2 **AC1** See 543.8 for their arrangement.

## **551.6.4**

*Replace reference to I.S. EN 60369-1 and I.S. EN 60369-2 with I.S. EN 60309-1 and I.S. EN 60309-2:*

a) a supply inlet consisting of a plug complying with **AC1** I.S. EN 60309-1 and I.S. EN 60309-2 **AC1**

## **555.1.5**

*Replace references to "I.S. EN 6033-1 and I.S. EN 6033-2" with "I.S. EN 60335-1 and I.S. EN 60335-2" values as below*

Domestic and similar appliances shall comply with **AC1** I.S. EN 60335-1 and I.S. EN 60335-2 **AC1**, and with the particular section of **AC1** I.S. EN 60335-2 **AC1** where specified in this Standard.

## **554.1.4**

*Replace references to 416.1 with 415.1*

A circuit supplying a socket-outlet shall be provided with additional protection against direct contact in accordance with **AC1** 415.1 **AC1** by means of an RCD...

## **560.7.2**

*Add "do not have to" to 2<sup>nd</sup> paragraph as follows:*

Wiring for safety circuits that are not required to continue to operate during a fire **AC1** do not have to **AC1** be fire-resistant, provided any area of fire hazard through which it passes is equipped with means for fire detection.

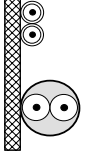
**Table Annex 51A**

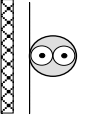
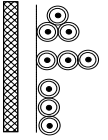
Correct AC1 and AC2 as follows:

Altitude	
AC1	$\overline{AC1} \leq \overline{AC1} \ 2\ 000 \text{ m}$
AC2	$\overline{AC1} > \overline{AC1} \ 2\ 000 \text{ m}$

**Table 52B.1,**

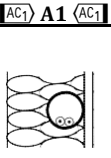
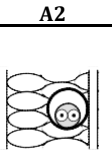
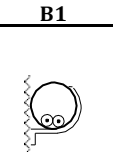
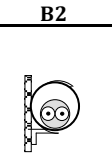
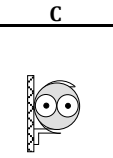
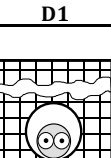
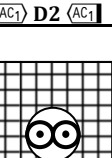
Replace references from "B52..." to "52B..." as indicated below:

	Single-core or multi-core cable on a wooden wall	C	52B.2 Col. 6	52B.4 Col. 6	52B.3 Col. 6	52B.5 Col. 6	70 °C Sheath $\overline{AC1}$ 52B.6 105 °C Sheath 52B.7 $\overline{AC1}$	52B.14	52B.17
---	--	---	-----------------	-----------------	-----------------	-----------------	---	--------	--------

	Multi-core cable in free air  Clearance to wall not less than 0,3 times cable diameter	E	Copper 52B.10  Aluminium $\overline{AC1}$ 52B.11 $\overline{AC1}$	Copper 52B.12  Aluminium 52B.13	70 °C Sheath 52B.8  105 °C Sheath 52B.9	52B.14	52B.20
	Single-core cables, touching in free air  Clearance to wall not less than one cable diameter	F	Copper 52B.10  Aluminium $\overline{AC1}$ 52B.11 $\overline{AC1}$	Copper $\overline{AC1}$ 52B.12 $\overline{AC1}$  Aluminium $\overline{AC1}$ 52B.13 $\overline{AC1}$	70 °C Sheath 52B.8  105 °C Sheath 52B.9	52B.14	52B.21

**Table 52B.3,**

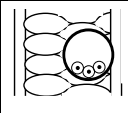
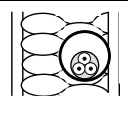


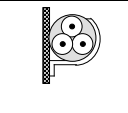
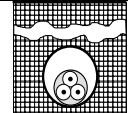

Replace incorrect values as indicated below:

Nominal cross-sectional area of conductor mm <sup>2</sup>	Installation methods of Table 52B.1						
							
	<b>AC1</b> A1 <b>AC1</b>	A2	B1	B2	C	D1	<b>AC1</b> D2 <b>AC1</b>
1	2	3	4	5	6	7	8
<b>Copper</b>							
1,5	19	18,5	23	22	24	25	27
2,5	26	25	31	30	33	33	35
4	35	33	42	40	45	43	46
6	45	42	54	51	58	53	58
10	61	57	75	69	80	71	77
16	81	76	100	91	107	91	100
25	<b>AC1</b> 103 <b>AC1</b>	99	133	119	138	116	129
35	<b>AC1</b> 131 <b>AC1</b>	<b>AC1</b> 121 <b>AC1</b>	164	146	171	139	155
50	<b>AC1</b> 158 <b>AC1</b>	<b>AC1</b> 145 <b>AC1</b>	198	175	209	164	183
70	<b>AC1</b> 200 <b>AC1</b>	<b>AC1</b> 183 <b>AC1</b>	253	221	269	203	225
95	<b>AC1</b> 240 <b>AC1</b>	<b>AC1</b> 220 <b>AC1</b>	306	265	328	239	270
120	<b>AC1</b> 278 <b>AC1</b>	<b>AC1</b> 253 <b>AC1</b>	354	305	382	271	306
150	<b>AC1</b> 318 <b>AC1</b>	<b>AC1</b> 290 <b>AC1</b>	393	334	441	306	343
185	<b>AC1</b> 362 <b>AC1</b>	<b>AC1</b> 329 <b>AC1</b>	449	384	506	343	387
240	<b>AC1</b> 424 <b>AC1</b>	<b>AC1</b> 386 <b>AC1</b>	528	459	599	395	448
300	<b>AC1</b> 486 <b>AC1</b>	<b>AC1</b> 442 <b>AC1</b>	603	532	693	446	502
<b>Aluminium</b>							
2,5	<b>AC1</b> 20 <b>AC1</b>	<b>AC1</b> 19,5 <b>AC1</b>	25	23	26	26	
4	<b>AC1</b> 27 <b>AC1</b>	<b>AC1</b> 26 <b>AC1</b>	33	31	35	33	
6	<b>AC1</b> 36 <b>AC1</b>	<b>AC1</b> 33 <b>AC1</b>	43	40	45	42	
10	48	<b>AC1</b> 45 <b>AC1</b>	59	54	62	55	
16	64	<b>AC1</b> 60 <b>AC1</b>	79	72	84	71	76
25	84	<b>AC1</b> 78 <b>AC1</b>	105	94	101	90	98
35	<b>AC1</b> 103 <b>AC1</b>	<b>AC1</b> 96 <b>AC1</b>	130	115	126	108	117
50	<b>AC1</b> 125 <b>AC1</b>	<b>AC1</b> 115 <b>AC1</b>	157	138	154	128	139
70	<b>AC1</b> 158 <b>AC1</b>	<b>AC1</b> 145 <b>AC1</b>	200	175	198	158	170
95	<b>AC1</b> 191 <b>AC1</b>	<b>AC1</b> 175 <b>AC1</b>	242	210	241	186	204
120	<b>AC1</b> 220 <b>AC1</b>	<b>AC1</b> 210 <b>AC1</b>	281	242	280	211	233
150	<b>AC1</b> 253 <b>AC1</b>	<b>AC1</b> 230 <b>AC1</b>	307	261	324	238	261
185	<b>AC1</b> 288 <b>AC1</b>	<b>AC1</b> 262 <b>AC1</b>	351	300	371	267	296
240	<b>AC1</b> 338 <b>AC1</b>	<b>AC1</b> 307 <b>AC1</b>	412	358	439	307	343
300	<b>AC1</b> 387 <b>AC1</b>	<b>AC1</b> 352 <b>AC1</b>	471	415	508	346	386
<p><b>NOTE</b> In columns 3, 5, 6, 7 and 8, circular conductors are assumed for sizes up to and including 16 mm<sup>2</sup>. Values for larger sizes relate to shaped conductors and may safely be applied to circular conductors.</p>							



**Table 52B.4,**

Replace incorrect values as indicated below:

Nominal cross-sectional area of conductor  mm <sup>2</sup>	Installation methods of Table 52B.1						
	A1	A2	B1	B2	C	AC1 D1 AC1	AC1 D2 AC1
							

**Table 52B.19**

Table incorrectly joined after 1<sup>st</sup> "Number of cables" = 20.

The remainder need to be under "B) Single-core cables in non-magnetic single-way ducts"

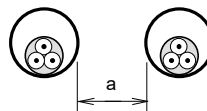
A) Multi-core cables in single-way ducts				
Number of cables	Duct to duct clearance <sup>a</sup>			
	Nil (ducts touching)	0,25 m	0,5 m	1,0 m
2	0,85	0,90	0,95	0,95
3	0,75	0,85	0,90	0,95
4	0,70	0,80	0,85	0,90
5	0,65	0,80	0,85	0,90
6	0,60	0,80	0,80	0,90
7	0,57	0,76	0,80	0,88
8	0,54	0,74	0,78	0,88
9	0,52	0,73	0,77	0,87
10	0,49	0,72	0,76	0,86
11	0,47	0,70	0,75	0,86
12	0,45	0,69	0,74	0,85
13	0,44	0,68	0,73	0,85
14	0,42	0,68	0,72	0,84
15	0,41	0,67	0,72	0,84
16	0,39	0,66	0,71	0,83
17	0,38	0,65	0,70	0,83
18	0,37	0,65	0,70	0,83
19	0,35	0,64	0,69	0,82
20	0,34	0,63	0,68	0,82

AC1 table split here AC1

Table 52B.19 (continued)

B) Single-core cables in non-magnetic single-way ducts				
Number of single-core circuits of two or three cables	Duct to duct clearance <sup>b</sup>			
	Nil (ducts touching)	0,25 m	0,5 m	1,0 m
AC1 2	0,80	0,90	0,90	0,95
3	0,70	0,80	0,85	0,90
4	0,65	0,75	0,80	0,90
5	0,60	0,70	0,80	0,90
6	0,60	0,70	0,80	0,90
7	0,53	0,66	0,76	0,87
8	0,50	0,63	0,74	0,87
9	0,47	0,61	0,73	0,86
10	0,45	0,59	0,72	0,85 AC1
11	0,43	0,57	0,70	0,85
12	0,41	0,56	0,69	0,84
13	0,39	0,54	0,68	0,84
14	0,37	0,53	0,68	0,83
15	0,35	0,52	0,67	0,83
16	0,34	0,51	0,66	0,83
17	0,33	0,50	0,65	0,82
18	0,31	0,49	0,65	0,82
19	0,30	0,48	0,64	0,82
20	0,29	0,47	0,63	0,81

<sup>a</sup> Multi-core cables



<sup>b</sup> Single-core cables



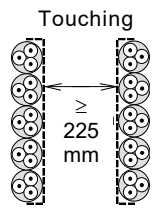
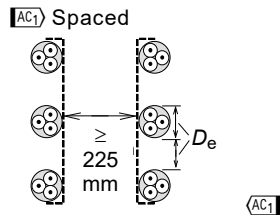
NOTE 1 Values given apply to an installation depth of 0,7 m and a soil thermal resistivity of 2,5 K·m/W. They are average values for the range of cable sizes and types quoted for Tables B.52.2 to B.52.5. The process of averaging, together with rounding off, can result in some cases in errors up to ± 10 %. Where more precise values are required they may be calculated by methods given in the IEC 60287 series.

NOTE 2 In case of a thermal resistivity lower than 2,5 K·m/W the correction factors can, in general, be increased and can be calculated by the methods given in IEC 60287-2-1.

NOTE 3 If a circuit consists of  $n$  parallel conductors per phase, then for determining the reduction factor this circuit shall be considered as  $n$  circuits.

**Table 52B.20 –**

For Vertical perforated cable tray systems, replace 2<sup>nd</sup> image and "Touching" with "Spaced":

Vertical perforated cable tray systems (note 4)	31		1	1,00	0,88	0,82	0,78	0,73	0,72
			2	1,00	0,88	0,81	0,76	0,71	0,70
			1	1,00	0,91	0,89	0,88	0,87	–
			2	1,00	0,91	0,88	0,87	0,85	–

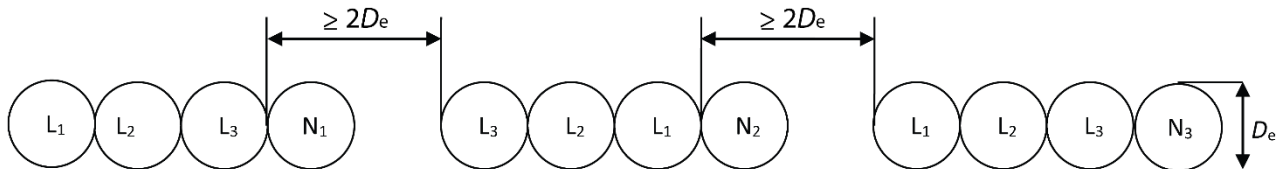
**Table 52C.2 – Current-carrying capacities in amperes**

Replace incorrect value for copper as indicated below:

D1/D2	50	148	AC1 122 AC1	173	144
-------	----	-----	-------------	-----	-----

**Figure 52H.4 – Special configuration for 9 parallel single-core cables in a flat plane**

Add missing "N<sub>3</sub>" in final cable:



**534A.1**

Delete number after NOTE as follows:

NOTE AC1 ± AC1

**55A.3.3 Cooker circuits**

Re letter the bullet points below and add "and including" where indicated:

AC1 a) AC1 Integral cooker units

The following size of cable is the minimum permissible; it does not apply to small table-mounted cookers.

Cooker up to  $\langle AC_1 \rangle$  and including  $\langle AC_1 \rangle$  10 kW: 6 mm<sup>2</sup> copper (fixed wiring), 4 mm<sup>2</sup> copper (flexible cable) fuse/MCB 35/32 A, isolating switch 45 A double pole.

$\langle AC_1 \rangle$  b)  $\langle AC_1 \rangle$  Separate ovens and hobs

**551ZC.1**

Change reference from "4-41" to "Part 41" as follows:

In this case, the requirements of  $\langle AC_1 \rangle$  Part 41  $\langle AC_1 \rangle$  shall ...

**Table 6E.2 – Standard values of operating time for RCDs – Type S**

Add "Non-Actuating" into 1<sup>st</sup> column as below and change "I" to "1" in Row 1, Column 3:

Test current	0,5 x I <sub>Δn</sub>	$\langle AC_1 \rangle$ 1 $\langle AC_1 \rangle$ x I <sub>Δn</sub> ms	5 x I <sub>Δn</sub> * ms
Maximum operating times	shall not operate	500	150
Maximum $\langle AC_1 \rangle$ Non-Actuating $\langle AC_1 \rangle$ times	shall not operate	130	50
Key: I <sub>Δn</sub> is the rated residual operating current e.g. 30 mA or 300 mA * This test is not required for RCDs rated above 100 mA.			

**Table 701.1 – Electrical equipment permissible in rooms containing a bath or shower**

Correct typo in 3<sup>rd</sup> column heading as follows:

**Fixed appliances,  $\langle AC_1 \rangle$  Luminaires  $\langle AC_1 \rangle$  and IP rating**

And in 2<sup>nd</sup> column for zone 1 change "25 V a.c." to "12 V a.c. or 30 V d.c. "

Switches and accessories up to SELV  $\langle AC_1 \rangle$  12 V a.c. or 30 V d.c.  $\langle AC_1 \rangle$  max.  
Wall-outlet boxes for zone 1 appliances.

And in 3<sup>rd</sup> column for zone 2 change to "zone 1" as below:

IP X4  
As  $\langle AC_1 \rangle$  zone 1  $\langle AC_1 \rangle$ , and in addition:  
  
Appliances to relevant I.S. EN Standard suitable for zone 2;  
  
Luminaires in accordance with 701.559

**705.522**

After NOTE 2 introduce line break after "705.522.10:" as follows:

AC1 Add additional subclauses 705.522.6.7, 705.522.10:

**705.522.6.7** Wiring systems supplying main ... AC1

**710.422**

Replace heading as follows:

**710.422** AC1 **Precautions where particular risks of fire exist** AC1

**710.6.4**

In bullet point g) replace reference to "710.535.1." with "710.536.1.1."

... requirements of AC1 710.536.1.1 AC1

**712.443 Protection against transient overvoltages of atmospheric origin or due to switching (page 581)**

Replace heading as follows:

AC1 **712.433 Protection against overload current** AC1

**Figure 717.1 – Example of connections to a class I or class II low-voltage generating set located inside the unit with or without an earth electrode**

Number NOTES as follows:

NOTE AC1 1 AC1

NOTE AC1 2 AC1

**722.531.3.101**

Delete number after NOTE as follows:

NOTE AC1 4 AC1

**Index**

Page 748

Change clause reference as follows:

D.C. Conductor colours Clause AC1 514.3.3 AC1



## National Standards Authority of Ireland

NSAI is the state standardization body set up under the National Standards Authority of Ireland Act 1996 to publish Irish Standards.

### Revisions

Irish Standards are updated by amendment or revisions from time to time. Users of Irish Standards should make sure that they possess the latest versions.

[Standards.ie](http://standards.ie)

Tel.: +353 1 857 6730/1

### Buying standards

NSAI and International publications can be accessed:

at [standards.ie](http://standards.ie)

by tel: +353 1 857 6730/1 or

email: [info@standards.ie](mailto:info@standards.ie).

### Feedback on Standards

NSAI welcomes any comments on standards whether proposing an amendment, correcting an error or identifying an ambiguity. Please use the "About NSAI" and then "Contact us" buttons on the [NSAI.ie](http://NSAI.ie) home page to explain your comment.

### Participation in developing Standards

NSAI Standards, whether of National, European or International origin, are drawn up by panels of experts. Persons with expert knowledge in any field where standardization work is taking place and who are interested in contributing to the work of the panels are welcome to make themselves known to NSAI. Please note that conditions apply. Click on the "Want to get involved with Standards" button in [NSAI.ie](http://NSAI.ie).