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KINGDOM OF BELGIUM

PUBLIC FEDERAL SERVICE FOR THE ECONOMY, SMES, THE MIDDLE CLASSES AND ENERGY AND THE PUBLIC FEDERAL SERVICE FOR EMPLOYMENT, WORK AND SOCIAL DIALOGUE

Royal Decree amending Articles 90, 91 and 92 of the General Regulations on Electrical Installations

ALBERT II, King of the Belgians,

To all those present and to come, Greetings.

Having regard to the Law of 10 March 1925 on electrical energy distribution, and in particular Article 21(1);

Having regard to the Law of 4 August 1996 on the well-being of workers while performing their work, and in particular Article 4(1);

Having regard to the Royal Decree of 10 March 1981 rendering obligatory the observance of the General Regulations on Electrical Installations for domestic installations and certain transport and electricity distribution lines and the Royal Decree of 2 September 1981 amending the General Regulations on Electrical Installations and rendering their observance obligatory in establishments classed as dangerous, insanitary or in which noisy or noxious trades are carried out as well as those referred to in Article 28 of the General Regulations on Employment Protection, amended by the Royal Decrees of 29 May 1985, 7 April 1986 and 30 March 1993;

Having regard to the General Regulations on Electrical Installations annexed to the Royal Decree of 10 March 1981, in particular Articles 90, 91 and 92;

Having regard to the opinion of the Standing Committee on Electricity of 13 February 2003;

Having regard to the opinion of the Higher Council for prevention and protection in the workplace of 27 June 2003;

Having regard to the fulfilment of the formalities laid down by Directive 98/34/EC of the European Parliament and of the Council laying down a procedure for the provision of information in the field of technical standards and regulations;

Having regard to the laws on the Council of State, consolidated on 12 January 1973, in particular Article 3(1), replaced by the Law of 4 July 1989 and amended by the Law of 4 August 1996;

Having regard to urgency;

Whereas the provisions laid down in this Decree constitute amendments to legislation which need to be rendered obligatory without delay in order to guarantee safety and to be in line with the recent developments in European standardisation;

On the proposal of Our Minister for Work, Our Minister for Energy and Our Secretary of State for the Organisation of Work and for Well-Being at Work,

We have decreed and hereby decree:

Article 1. - For the purposes of this Decree, "Regulations" shall be understood to mean the General Regulations on Electrical Installations, the subject of the Royal Decree of 10 March 1981 rendering obligatory the observance of the General Regulations on Electrical Installations for domestic installations and certain electricity transmission and distribution lines and the Royal Decree of 2 September 1981 amending the General Regulations on Electrical Installations and rendering their observance obligatory in establishments classed as dangerous, insanitary or in which noisy or noxious trades are carried out as well as those referred to in Article 28 of the General Regulations on Employment Protection, amended by the Royal Decrees of 29 May 1985, 7 April 1986 and 30 March 1993.
Article 2. – Article 90 of the Regulations is replaced by the following article:

"Article 90 – SWIMMING POOLS
01.- Definitions
Volume 0: the internal volume of the pool, openings in the walls or the bottom, and foot baths.

Volume 1: the volume limited by:

- volume 0;
- the vertical surface located 2 m from the edges of the pool;
- the ground;
- the horizontal plane located 2.5 m above the ground or the surface accessible to people.

When the pool has diving-boards, springboards, starting platforms, slides or structural elements accessible to people, volume 1 shall be limited by:

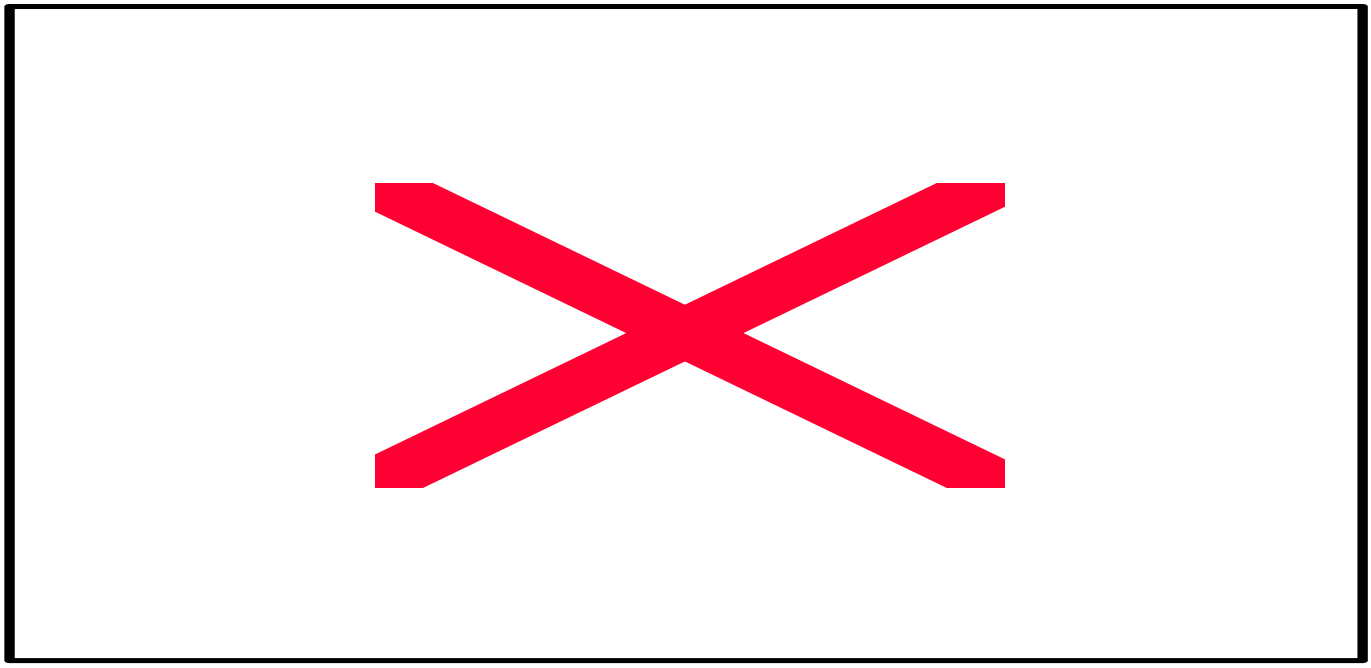
- a vertical surface located 1.5 m around the diving-boards, springboards, starting platforms, slides or accessible structural elements;
- the horizontal plane located 2.5 m above the highest level accessible to people.

Volume 2: the volume limited by:

- the external vertical surface of volume 1 and the parallel plan located 1.5 m from this. Insofar as external influences AD4/BC3 are present outside this parallel plan, it is necessary to consider this area as part of volume 2;
- the ground;
- the horizontal plan located 2.5 m above the ground or the surface accessible to people.

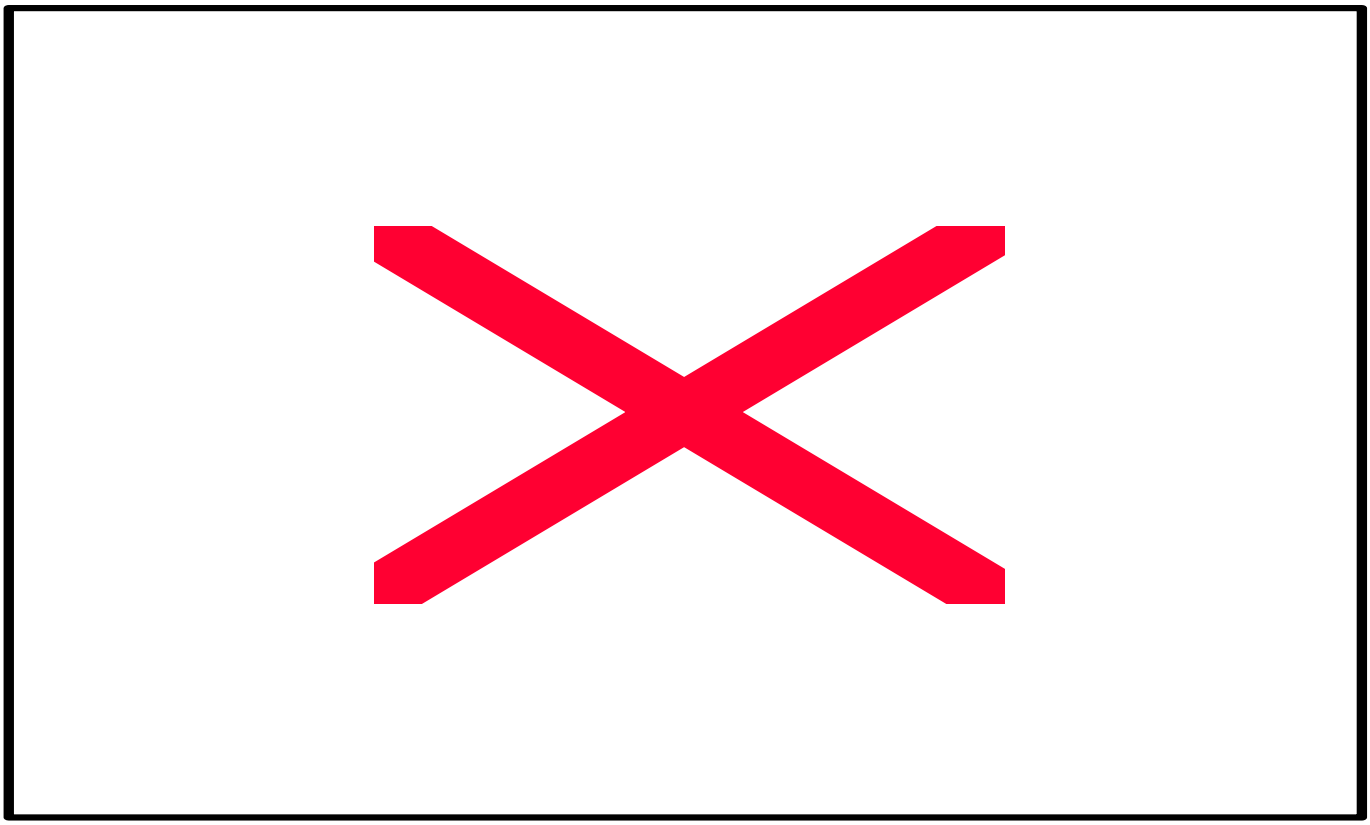
The presence of fixed walls at least 2.5 m high shall influence the dimensions of the aforesaid volumes 1 and 2.

The drawings hereinafter specify the different volumes for some situations.



Volume dimensions for swimming pools and foot baths

Volume dimensions for swimming pools above ground



Example of the volume dimensions with fixed partitions at least 2.5 m high (plane representation)

02.- External influencing factors
Combinations of the external influencing factors "presence of water", "state of the human body" and "contact with the ground potential" are referred to in the table below:

External influence	Volume 0	Volume 1		Volume 2
		0 ↔ 1.25 m	1.25 ↔ 2 m	
Presence of water	AD7/AD8	AD5	AD4	AD4
State of the human body	BB3	BB3	BB2	BB2
Contact with the ground potential	BC4	BC3	BC3	BC3

03.- Protection from indirect contacts by the use of safety extra-low voltage
When protection against indirect contacts is provided by the use of safety extra-low voltage, its maximum voltage shall be equal to the following values:

Maximum voltage in volts	Volume 0Volume 0	Volume 1Volume 1		Volume 2Volume 2
		0 ↔ 1.25 m	1.25 ↔ 2 m	
Alternating current	12	12	25	25
Non-smooth direct current	18	18	36	36
Smooth direct current	30	30	60	60

04.- Protection against direct contacts - degree of protection of the electrical equipment
Protection against direct contacts shall be provided by the use of insulation, barriers or casings. The degree of protection of the electrical equipment shall be at least:

	Volume 0Volume 0	Volume 1Volume 1		Volume 2Volume 2
		0 ↔ 1.25 m	1.25 ↔ 2 m	
Minimum degree of protection	IPX7/IPX8	IPX5	IPX4*	IPX4*

* When using safety extra-low voltage at most equal to 12 volts AC, 18 volts non-smooth DC and 30 volts smooth DC, no degree of protection shall be required.

05.- Safety separation of circuits

When circuit separation is used as the protection measure against electric shocks, a circuit separation transformer may only supply one device.

06.- Additional equipotential bonding

An additional equipotential bonding, made in accordance with the provisions of Article 73, shall connect all foreign conductor elements and simultaneously accessible earths of the electrical equipment located in volumes 0, 1 and 2, with the exception of the earths of safety extra-low voltage electrical equipment.

07.- Electrical wiring

In volume 0, wiring shall be limited to the wiring forming part of the electrical equipment permitted therein.

In volumes 1 and 2, exposed electrical wiring or wiring embedded at a depth no greater than 5 cm shall include additional insulation and shall be classed by order of the Ministers responsible for Energy and Work Safety, each for their own part, as having electric shock safety equivalent to that of class II devices. They shall comprise no external metallic covering.

Embedded wiring shall follow vertical or horizontal routes. In the latter case, wiring shall be placed near the ceiling.

In volumes 1 and 2, wiring shall be limited to wiring that is necessary for the supply of the electrical equipment located in these volumes.

08.- Connection boxes

Connection boxes for electrical wiring are prohibited in volumes 0 and 1. However, for SELV circuits, they are permitted in volume 1.

09.- Control equipment, regulating devices and plug sockets

With the exception of contact detectors, control equipment, regulating devices and plug sockets are prohibited in volumes 0 and 1.

Control equipment, regulating devices and plug sockets are permitted:

- in volume 1, if they are installed in an insulating cover 1.25 m at most from the boundary of volume 0 and at least 0.3 m above ground.
- in volume 2,

provided that they are protected by one of the following measures:

- SELV supply with a voltage at most equal to 25 volts AC, 36 volts non-smooth DC and 60 volts smooth DC. The SELV supply device shall be located outside volumes 0, 1 and 2. This device may be installed in volume 2 if its supply circuit is protected by a high or very high sensitivity residual differential current protection device;
- automatic supply cut-off by means of a high or very high sensitivity residual differential current protection device;
- individual safety separation by means of a control device, regulating device or socket in accordance with the specifications of Article 76. The supply device shall be located outside volumes 0, 1 and 2. This device may be installed in volume 2 if its supply circuit is protected by a high or very high sensitivity residual differential current protection device.

10.- Luminaires

Luminaires in volume 0 may only be supplied with safety extra low voltage in accordance with the values set out in the table in point 03.

Dans les volumes 1 et 2, des luminaires sont admis à condition d'être protégés par l'une des mesures suivantes :Luminaires are permitted in volumes 1 and 2 provided that they are protected by one of the following measures:

- safety extra-low voltage supply in accordance with the values laid down in the table in point 03;
- mechanical protection (external influence AG2) may only be removed using a tool, and located at least 2.25 m above the surface accessible to people.

11.- Built-in floor heating elements

Built-in heating elements in the floors and walls of volume 0 are prohibited.
Heating elements which conform to the provisions of Articles 53 and 217 shall be permitted in the floors of volumes 1 and 2 provided that they are covered by a metallic grill linked to the additional equipotential bonding.
12.- Other devices
In volumes 0, 1 and 2, electrical machines and devices other than those cited in the preceding points, must fulfil the following conditions:
- they are necessary for operation of the pool (pumps etc.);
- they are fitted in a cover whose insulation is equivalent to a class 2 device and which provides mechanical protection (external influence AG2);
- additional protection is provided by one of the following measures:
  - safety extra-low voltage supply in accordance with the values laid down in the table in point 03, or
  - automatic supply cut-off by means of a high or very high sensitivity residual differential current protection device, or
  - individual circuit separation in accordance with the specifications of Article 76.

If the electrical equipment is placed in a duct or a technical area located in volume 1 or 2:
- it is only accessible to service and maintenance staff;
- all live, unprotected parts, which may be accidentally touched when coverings are removed or opened, are automatically switched off;

- this duct or technical area is made floodproof."

Article 3.- In Article 91 of the Regulations, the following amendments are made:
1- in point 01(4), the text is replaced by the following text:
"- from the point of view of ambient temperature, 4 distinct volumes are identified, as cited in the figure below;
  - in volume 1, only electrical equipment forming part of the heating devices for saunas is permitted;
    - in volume 2, there is no specific requirement from the point of view of the equipment's heat resistance;
    - in volume 3, the electrical equipment must be able to withstand a temperature of 125 °C;
  - in volume 4, only luminaires, the control and regulating devices of heating devices for saunas, and wiring connected thereto shall be installed. Temperature detectors must be obligatorily located in volume 4. Heat resistance must be as laid down for volume 3."

2- point 05 is replaced by the following point:
"05.- Electrical machines and devices
In saunas, the only electrical equipment permitted are heating devices, including their control and regulating devices, luminaires, wiring connected thereto and connection boxes.
These devices shall be:
- protected by means of individual circuit separation in accordance with the specifications of Article 76;
- either class 1, their supply circuits being protected by high or very high sensitivity residual differential current protection devices;
- or class II or with electric shock safety equivalent to that of class II devices;
- or class III and supplied at safety extra low voltage in accordance with the values set out in point 02.

All other electrical devices shall be located outside the sauna."
Article 4.– Article 92 of the Regulations is replaced by the following article:
"Article 92.- Fountains and other water pools

01.- General

For fountains and other water pools, the specifications relating to swimming pools shall apply.

For fountains and other water pools which are made inaccessible to people by reliable and adequate means, the specifications of the following points shall apply.

02.- Definitions

Volume 0: the volume inside the pool, openings in its walls or bottom and the volume inside waterfalls or fountains.

Volume 1: the volume limited by:

- volume 0;
- the vertical surface located 2 m from the edges of the pool;
- the ground;
- the horizontal plane located 2.5 m above the highest level or surface accessible to people.

When fountains or other water pools comprise structural elements which are accessible to people, volume 1 shall be limited by:

- a vertical surface located 1.5 m around the said structural elements ;
- the horizontal plane located 2.5 m above the highest level accessible to people.

The presence of fixed walls at least 2.5 m high shall influence the dimensions of the aforesaid volume 1.

There is no volume 2.

03.- Protection from indirect contacts by the use of safety extra-low voltage

When protection against indirect contacts in volumes 0 and 1 is provided by the use of safety extra low voltage, its maximum voltage shall be equal to 50 volts AC, 75 volts non-smooth DC or 120 volts smooth DC.

04.- Protection against direct contacts - degree of protection of the electrical equipment

Protection against direct contacts in volumes 0 and 1 shall be provided by the use of insulation, barriers or casings.

The degree of protection of the electrical equipment shall be at least:

- IPX7/IPX8 in volume 0;
- IPX5 in volume 1;

05.- Safety separation of circuits
When circuit separation is used as the protection measure against electric shocks, a circuit separation transformer may only supply one device.
06.- Additional equipotential bonding
An additional equipotential bonding, made in accordance with the provisions of Article 73, shall connect all foreign conductor elements and simultaneously accessible earths of the electrical equipment located in volumes 0 and 1, with the exception of the earths of safety extra-low voltage electrical equipment.
07.- Electrical wiring
In volumes 0 and 1, wiring shall be limited to wiring that is necessary for the supply of electrical equipment located in these volumes.
08.- Connection boxes and plug sockets
Connection boxes for electrical wiring and plug sockets are prohibited in volumes 0 and 1. However, for SELV circuits, they are permitted in volume 1.
09.- Luminaires
Dans les volumes 0 et 1, les luminaires sont admis à condition d'être protégés par l'une des mesures suivantes :Luminaires are permitted in volumes 0 and 1 provided that they are protected by one of the following measures:
- SELV supply in accordance with the values set out in point 03. The SELV supply device shall be located outside volumes 0 and 1.
- automatic supply cut-off by means of a high or very high sensitivity residual differential current protection device;
- individual circuit separation in accordance with the specifications of Article 76. The supply device shall be located outside volumes 0 and 1.

Luminaires in volumes 0 and 1 must be fixed and fitted with mechanical protection (external influence AG2), which can only be removed using a tool.
Luminaires in volume 0, located behind fixed windows and supplied outside volume 0, must be made in such a way that no galvanic contact can occur between the earth of the luminaires and the conducting parts of the windows.
10.- Other devices
In volumes 0 and 1, only pumps and the electrical equipment cited in the preceding points are permitted.
Pumps shall be protected by one of the measures cited in point 09.
If the electrical equipment is placed in a duct or a technical area located in volume 1 or 2:
- it is only accessible to service and maintenance staff;
- all live, unprotected parts, which may be accidentally touched when coverings are removed or opened, are automatically switched off;
- this duct or technical area is made flood proof.

Article 5.– This Order shall apply to electrical installations and significant modifications or extensions to be carried out on-site that have not already been started three months after the date of publication of this Order.

Article 6. – Our Minister for Work, Our Minister for Energy and Our Secretary of State for the Organisation of Work and for Well-Being at Work shall be responsible, each for their own part, for the implementation of this Decree.

Done at

For and on behalf of the King:

The Minister for Work,

F. VANDENBROUCKE.

The Minister for Energy,

Fientje MOERMAN

The Secretary of State for the Organisation of Work and for Well-Being at Work,

A. TEMSAMANI.