# EUROPEAN CPR REGULATION

**5a** General discussion on legislation, identification of a civil engineering and its application

**5b** Application of the legislation for cables, identification of the risk class, reasons for choosing between one risk class and another, CPR product labeling, legal limits and impositions


On 1 September 2016, the Italian Electrotechnical Committee issued the CEI UNEL 35016 standard which establishes, based on the CENELEC and CEI installation regulatory requirements, the four fire reaction classes for electric cables in relation to the Construction Products Regulation (EU 305/2011), which allow compliance with the installation requirements in the current version of the CEI 64-8 standard.
CEI UNEL standard applies to all electrical cables, whether they are for the transport of energy or data transmission with metallic or dielectric conductors, for permanent installations in buildings and civil engineering works with the aim of supporting designers and users in choosing the cable suitable for any type of installation.

## CPR CORRELATION TABLE

| LUOGHI DI IMPIEGO | LIVELLO DI RISCHIO | DESIGNAZIONE CPR | CLASSE DI PRESTAZIONE |
|---|---|---|---|
| Aerostazioni, stazioni ferroviarie, stazioni marittime, metropolitane in tutto o in parte sotterranee. Gallerie stradali di lunghezza superiore a 500 m, ferroviarie superiori a 1000 m. | ALTO | FG18OM16 0,6/1Kv | B2ca-s1a, d1, a1 |
| Strutture sanitarie, locali di spettacolo e di intrattenimento in genere, palestre e centri sportivi. Alberghi, pensioni, motel, villaggi, residenze turistico-alberghiere. Scuole di ogni ordine, grado e tipo. Locali adibiti ad esposizione e/o vendita all'ingrosso o al dettaglio. Aziende ed uffici con oltre 300 persone presenti; biblioteche ed archivi, musei, gallerie, esposizioni e mostre. Edifici destinati ad uso civile, con altezza antincendio superiore a 24 m. | MEDIO | FG16OM16 0,6/1Kv | Cca-s1b, d1, a1 |
| Edifici destinati ad uso civile, con altezza antincendio inferiore a 24 m, sale d'attesa, bar, ristoranti, studi medici. | BASSO (posa a fascio) | FG16OR16 0,6/1Kv | Cca-s3, d1, a3 |
| Altre attività: installazioni non previste negli edifici di cui sopra e dove non esiste rischio di incendio e pericolo per persone e/o cose. | BASSO (posa singola) | FR2OR 4501750V | Eca |

# CPR CORRELATION EXAMPLE

Cca

## FIRE SPREAD

Flame propagation length: FS≤2,0m

Total amount of heat released: THR1200 ≤30 MJ

Value of the peak heat released: Peak HRR ≤60 KW

Fire rate of increase: FIGRA ≤300 $WS^{-1}$

Burn height: H ≤

s1b

## SMOKE

Total amount of smoke emitted: TSP1200s ≤50$m^2$

Peak value of the smoke emitted: peak SPR ≤0,25 $m^2/s$

Transmittance: ≥60% <80%

d1

## DROPS

Absence of persistent burning drops/particles: beyond 10 s and within 1200 s

a1

## ACIDITY

Conductivity: <2,5 µ S/mm and pH> 4,3

# THE REQUIREMENTS CONSIDERED RELEVANT FOR CABLES

## A) SAFETY IN THE EVENT OF FIRE (Requirement n. 2 - Annex 1 of the CPR Regulation)

The construction works must be designed and built in such a way that, in the event of a fire:

1. The generation and spread of fire and smoke within them are limited
2. The spread of fire to nearby construction works is limited
3. Occupiers can abandon the construction works or be rescued in other ways
4. The safety of the rescue teams is taken into account

## B) HYGIENE, HEALTH AND ENVIRONMENT (Requirement n. 3 - Annex 1 of the CPR Regulation)

- Construction works must be designed and built in such a way that they do not pose, during their entire life cycle, a threat to hygiene or health and safety. The compliance of the cables with the requirements of hygiene, health and the environment is considered implicitly fulfilled by compliance with the RoHS Directive (2011/65/EU and subsequent amendments) and the REACH Regulation (1907/2006/CE).

# THE CONSTRUCTION PRODUCTS REGULATION FOR CABLES

- DO ELECTRIC CABLES FALL WITH THE CPR REGULATION?

All electrical cables for energy, control and telecommunications of any voltage and type of conductor are referred to in table 1 of annex IV of the CPR Regulation which defines the various levels of performance with the aim of limiting the generation, the spread of fire and smoke emissions, recognizing the importance of their behavior and their role in the event of a fire.

- WHAT DOES IT MAKE FOR CABLES TO FALL THE SCOPE OF CPR?

With the release of a cable on the market, it will be necessary for the manufacturer to draw up the Declaration of Performance (DoP: Declaration of performance) of that cable as per Annex III of the CPR Regulation and that it is in possession of the necessary requisites to be able to apply the CE marking, assuming the responsibility of the conformity of the product to what was declared. The DoP must accompany each cable placed on the market up to the end user, who must show it to the competent authorities if they request it (Article 7 of the CPR Regulation) can be supplied in paper form or on electronic support.

# THE CONSTRUCTION PRODUCTS REGULATION FOR CABLES

- WHAT IS MEANT BY CIVIL ENGINEERING?

Civil engineering works are defined as construction, maintenance, repair, demolition, conservation, rehabilitation, restructuring or equipping, transformation, renovation or dismantling of fixed, permanent or temporary works, in masonry, reinforced concrete, metal , in wood or other materials, including the structural parts of power lines and the structural parts of electrical systems, road, railway, hydraulic, maritime, hydroelectric works and, only for the part involving construction or civil engineering works, the land reclamation, forestry and earthworks works. Furthermore, building construction or civil engineering works include excavations and the assembly and disassembly of prefabricated elements used for the construction of building or civil engineering works. (Consolidated law on occupational health and safety art. 89, paragraph 1, letter a).

- WHAT CABLES ARE INCLUDED UNDER THE CPR? – Source Europacable –

Cables for permanent installations in buildings which fall within the scope of two types of products:

- Cables intended to be used for the supply of electricity and communications in buildings and other civil engineering works subject to reaction to fire performance requirements;
- And in the future cables subject to fire resistance performance requirements intended to be used for the supply of electricity, communications and fire detection/alarm in buildings and other civil engineering works where it is essential to ensure continuity of supply of energy and/or or signal for the safety of the installation.