

28 October 2019

TBE POSITION PAPER

ON THE IMPLEMENTATION OF THE EUROPEAN STANDARD EN 772-22

Key messages

TBE recommends that the freeze/thaw resistance of masonry units intended to be used in unprotected masonry should be evaluated according to EN 772-22.

TBE points out that a longer period of transition is needed to allow for a smooth implementation process in daily practice in the industry. Therefore, TBE supports the running ballot N1506 closing on 12 November 2019 and requesting for an extension of the date of withdrawal for EN 772-22:2018 from 30 June 2019 to 12 December 2021.

The publication of the European Standard EN 772-22 '*Methods of test for masonry units - Part 22: Determination of freeze/thaw resistance of clay masonry units*' as well as the withdrawal of the conflicting national standards raise a change for a more detailed declaration of the Essential Characteristic "durability against freeze/thaw". TBE underlines that the freeze/thaw resistance testing methodology has been radically modified in some Members States. Indeed, the EN 772-22 standard principle is based on a panel (wall) of clay masonry units and rapid hardening mortar which measures between 0.25 m² and 0.5 m², while according to many conflicting national standards the test is carried out directly on the masonry units. In this context, no direct equivalence can be established between the results obtained with both different methodologies without access to the new test equipment.

TBE points out that implementing the testing method of EN 772-22 standard implies complex and expensive equipment for laboratories. Therefore, the number of laboratories that can conduct the test has been significantly reduced. It should also be taken into account that the test duration is approximately one month which limits the testing capacity and makes it nearly impossible to test the wide range of facing bricks types available on the market.

Moreover, Member States had to remove conflicting national standards until 12 June 2019. TBE points out that this period of time is too short, prevents an orderly transition and generates confusion in the marketplace. In the field of standardization, it is common for standards to evolve and change. Nevertheless, when there is a significant technical change in the testing methodology, a coexistence period is usually established for at least 1 year. Thus, TBE stresses that a longer period of transition would have been better to allow for a smooth implementation process in daily practice in the industry.

Furthermore, there are several issues that create uncertainties. First of all, the product standard (EN 771-1) does not refer to the actual test standard EN 772-22. In addition, a number of improvements have been made in the test standard EN 772-22 and the harmonised product standard EN 771-1 has not been updated yet in conformity with these improvements.

The CEN/TS was not mentioning an assessment method foreseen to determine the applicability in “moderate exposure F1”. Following the new test method EN 772-22, this application can now be determined as the freeze/thaw resistance F1 (n) where n (< 100 cycles) gives the number of freeze/thaw cycles where no damage has been noticed.

It was also established in practice during the years that tests have been performed following the CEN/TS 772-22 that for some “exposure conditions”, further specified below, not included in the “severe exposure class F2” but included in the scope of EN 771-1, as defined in the product standard, a higher saturation during the conditioning of the test panel was needed to determine the freeze/thaw resistance. That is why the new test method foresees now 2 different saturations of the test panel:

- Partial saturation by immersion in water at room temperature (20 °C)
- Partial saturation by immersion in water at 80°C

If the clay masonry units were assessed, after partial saturation by immersion in water at 20 °C, the units may be classified F2. If the method of partial saturation used was by immersion in water at 80°C, the units can now be classified as F2 (80°C) according to the test standard.

The table below presents exposure classes as indicated in the actual product standard and in the new test standard EN 772-22:

Exposure classes as indicated in the actual product standard EN 771-1:2011 +A1:2015	Freeze-thaw resistances related to exposure classes as mentioned in the new test standard EN 772-22:2018
F0 Passive exposure	F0 (frost resistance not tested)
F1 Moderate exposure	F1 (n) where n (< 100 cycles) gives the number of freeze/thaw cycles where no damage has been observed
F2 Severe exposure	F2 frost resistance documented through 100 cycles
	F2 units foreseen to be used for unprotected masonry (e.g façade) F2 (80°C) Units permanently in contact with water (e.g canal)