

Free properties of physical materials used to construct buildings report sample

[Environment](#), [Water](#)



Currently the EN 771-1 has been revised in order to adapt the new element of the Construction Products regulation. This exercise entailed stipulations of the usage of the product and modification to the new CE design and the affirmation of the performance. The new law requires the manufacturers of the construction materials to apply the CE markings. Art. 11 of the CPR emphasizes that the manufacturer has to fulfil the obligation of drawing up the declaration performance and to affix the CE marking.

Introduction

The product category rules are important in preparation of the EPDs for manufactured concrete and the concrete masonry products. The product category rules are developed to be useful in general programs instructions which helps in ASTM International's Environmental Product Declaration programs. The PCR 2013: 02 for concrete was reviewed and the regional procedure and the government policies variance were identified. The CLF PCR is only written for the concrete which is already mixed and does not capture the specific components of materials exceptional to manufactured concrete. For instance in the manufacturing of the CLF PCR only the energy used in the process like mixing is need to be included.

The PCR understanding is very essential in this report since it specifies the rules, requirements and guidelines for development of the EPDs manufactured concrete and concrete masonry products. Moreover the PCR document gives the necessary requirements of related life-cycle assessments. The PCR at one given point may become invalid since they are only effective for a period of five years from the latest date of publication.

The PCR document is revised after the five years if the products category or

other important factors have changed. In addition the EPD which has been created under the PCR is also valid for duration of five years from date it was issued. The EPD is evaluated and reassessed after five years in order to reflect change that might have taken place in technology and other factors that could change content and accuracy of declaration.

Durability of the materials is very essential in construction of buildings. The strength of the structure is not only the main factor to consider in making choice of appropriate mixes. Durability of the concrete is important and a higher quality concrete resists the exposure to elements. Durability also helps in prevention of wearing off of slabs, pavements and attack by the ground water. Concrete can be exposed to environmental and ground conditions include corrosion due to carbonation, chloride and seawater. The chloride in concrete can be regulated to prevent the corrosion from occurring.

The testing of safe construction product is not much required since the safe and quality products have the CE mark. All the construction products producers are required to ensure that the products are tested and of good quality to minimize the burden of testing by the users. This suggests that all products that are traded in the European market have first to be verified as safe.

Wall Finishes

Wall finishes are used in buildings to decorate buildings and hide some of the building components including structural components. Interior wall finishes experiences variety of problems which includes the ceiling cracks, nail pops

and other hidden structural damages. In detecting defects of the interior walls, the parallel light and tapping are applied.

Wall finishes which are plumb and straight are good and they comprise surfaces that are smooth. Wall finishes that comprise of versatile surfaces and that have decorative surfaces are termed as better finishes. In some cases wall finishes serves as a decorative measure of kitchens and bathrooms. In this case the resistance to water damages like corrosion is an added advantage to durability of the walls.

Facing Bricks

The appearance of the building depends on the choice of the building blocks among other external materials used. The internal construction is done by use of thermal and other blocks. Choice of the blocks is wide and blocks come in different sizes, shapes and colours. A concrete masonry unit which is constructed should have units which are exposed. The bricks used should be 4 inches and with weight which allows them to be lifted with one hand. They should comply with the ASTM C129.

Clay Facing Bricks

This kind of brick is classified into three types. The wirecut is one of the bricks which is mainly in the UK. The clay is first extruded by use of a brick-shaped die and the appearance is determined by additions of sand or by texturing of the face. The clay column obtained is later cut into bricks and fired which produces sharper brickwork. Secondly we have stock bricks which are moulded by use of machine and have frog indent which is formed as a result of pressing the wet clay in the sanded moulds. The soft texture of

the bricks is due to the use of sand to release the bricks. Stock bricks have softer texture than other clay facing blocks. Lastly we have the waterstruck which are free from the mould by water.

Reclaimed Brick facing Brickwork

These kinds of bricks have been reclaimed from demolition sites. Some of these bricks are handmade bricks while others are types of facing bricks and engineers. These blocks are worn out and are of irregular shapes. Other bricks have remains of mortar since they were previously used in other constructions. Many of them have variety of colours which are faded signifying they are old or previously been used. The presence of creases, and folds which are some of old brick characteristics. These characteristics of bricks give the reclaim bricks unique and charming characteristic.

Clay Common Brick Work

There are four different kinds of external walls made of clay block. The monolithic external wall consists of just one wall construction material. Common Bricks have very low compressive strength and they have low quality than the engineering and the facing bricks. No attempt is made to influence their colour or their appearance. These blocks are not supposed to be used below ground since they are used for internal brickwork. These blocks have a general colour at the base and different colours added at their faces.

Engineering blocks have low water absorption ability and are highly compressible. These blocks are classified as either A or B, A being the strongest making it suitable for use below the ground level and in damp

areas. Imperial-sized bricks sizes ranges from 73mm or 75mm. Special shapes and sizes blocks are mainly used to compliment with facing bricks.

Handmade

These kinds of bricks are made by throwing of clay into mould by hand. This acts helps in production of creases that helps in defining handmade bricks. Today these bricks are made by uses of machine. These bricks are used to add style and value, style, character and individuality to any construction.

Concrete Roof Paver

This is a masonry unit which is produced for use in roof paving applications, and in compliance with the ASTM C1491. Moreover, we have the prefaced concrete masonry unit which is used in constructions and has the exposed-to-view-in place surfaces covered with tile facing. It complies with ASTM C744.

NATURAL STONE RUBBLE WALLING

The function of the mortar in walls is to act as bed between stones. Mortar varies in sizes which consist of fine joints in ashlar stonework and large joints are found in rubble masonry walls. Moreover, the mortar performs other functions which include prevention of water penetration through the joints. It physical a presence which is sponge like helps in prevention of water penetration and allows the drain well and breathe.

One of the good qualities of a mortar is ability to be flexible in a way that movement of structure is established due to thermal expansion. The thermal responses are very significant in building which has been embarked

currently. The strength of mortar should always be less than the nearby stones as it helps in maintenance in times of need.

Common Defects

Repointing has been viewed as a cosmetic exercise. When repointing is done in the hard cement mortar and placed over the existing joints instead of the mortar the points are likely to be incorrectly placed. A hairline crack which develops due to strength of mix allows the water to penetrate preventing the moisture to evaporate due to its density. This causes fall offs in 10 years' time since the joints preparations lacks.

Slap technique is another practice which involves plastering of joints and stone with the cement mortar. This practice causes partial or part pointing of façade. The stonework is disfigured and the walls are prevented from breathing. The adhesion qualities of the cement prevents its removal and in the next stage of repair plastering is needed due to the damage caused.

Repointing is only necessary if mortar is decaying, damaged or cracked. A historic mortar remains untouched. In very extreme weather repointing is necessary.

When repointing is done care should be taken to avoid damage and the joints are raked out to a depth of 10-12 mm deep.

Ingredients

A variety of sands are chosen in terms of colour and texture in order to match with the original mortar and compliment the stone. The sand should be durable, hard and free from soluble salts. Water is also an ingredient which should be clean and it is used in mixing and rinsing of joints.

Moreover, lime is also important though the bagged hydrated lime is commonly preferred. The lime is slaked before usage to increase its quality and workability.

Cement is important as it measures a lime based mortar in open positions. Currently the usage of cement is not recommended. Dyes are rarely used in mortars since the natural colours are easily obtained by mixing of the appropriate sands which are oxide created. Furthermore, the moisture inhibitors are also important and are used with cement mixes. The purposes of these chemical additives are to prevent moisture from entering and from leaving the walls. This has been applied in the modern constructions although, in old buildings

Aggregate is also used and it comes in many varieties. A good bond is established by the use of small rounded deposits which should be less than 3 mm. However. The large particles may be useful in in matching the appearance of a historic mortar. In application of larger particles the grade should be clearly identified and mixture of sharp and rounded grains should be included. Best bonds are achieved when sharp sand is used though rounded grains are found in the ancient mortar.

Method of Rubble Stone Masonry

The processes consist of 4 stages but the sample panel are first effected before commencement. Stage 1 involves removal of the old mortar up to a depth of 25 to 44 mm. Depth of the joint is comparative to the width among stones. The joints that are exposed are cleaned with water or compacted air. The last step of this stage involves moistening of the joints and masonry to

safeguard that the water in the mortar is does not evaporate to neighbouring masonry affecting the pointing to dry fast.

The second stage involves filing of void and stuffing out in order to deliver constant depth before pointing. Pinning is also done in order to reduce volume of mortar and at times it serves as a decorative feature of a historic mortar. In this stage joints and stonework should too be moistened once again. In stage three pointing is done again but adequate care should be taken to avoid pointing and drawing of lime to the face. At this stage it necessary to finish pointings by scraping to achieve good exterior and remove remaining laitance.

Stage four involves protection of the joints and proper monitoring for seven days and the remoistening by spraying after 24 hours. Presence of hairline cracks is not good and working out the cracks is done. All joints in the constructions are wetted before and properly filled with the mortar struck solid

Accessories or Sundry Items for Brick or Block Stone Walling

Cavities

The ready-mixed concrete is made to the British and European Standard of BS 8500 and BS EN 206. Cavities bas and faces should be kept clean. This is achieved by ensuring that the cavity base and faces are free from mortar and debris and have insulation.

Perpend Joint Weep Holes

The following are specifications of the perpend joint weep holes . The perpend joint should be open and it should be through the outer leaf just immediately above base of the cavity trays. The presence of stepped dpcs and external openings which are 75 mm above the top of cavity to fill at the base are necessary to be taken into consideration. Some provision of not greater than 1000 mm centres and not less than two above every opening must be prepared.

Full Fill Cavity Insulation

Glass mineral wool is ideal for insulation purposes and the best standard to be taken into account is the BS EN 13162. Product certification is from the British Board of Agreement and the manufacturer is Knauf Insulation Ltd. The product reference is the Earthwool Dri Therm Cavity Slab 37 with the face size of 1200 mm by 455 mm. The nominal thickness is 50mm or 65mm. The product thermal conductivity is 0. 037W/Mk and with the reaction to fire factor the Euro class A1 is the best quality. The other product is the Earth wool DriTherm Cavity Slab is the Earth wool DriTherm Cavity Slab 34 which has face size of 1200 by 455mm, thickness of 75or 85mm, thermal conductivity of 0. 34W/Mk and Euroclasss A1.

Reinforcing the Accessories

The cavity trays junctions are fixed in place to provide in a way that free drainage is available and the water tight installations should be in place. The horizontal DPCs are to be placed in continuous length with 100mm laps at the joints and full laps at the angles