

S.I. 63 OF 1991

SEYCHELLES BUREAU OF STANDARDS ACT, 1987

(Act 8 of 1987)

Seychelles Bureau of Standards (Standard Specification for Concrete Blocks) Notice, 1991.

In exercise of the powers conferred by section 16(1) of the Seychelles Bureau of Standards Act, 1987 the President, being the Minister responsible for the administration of the Act, hereby makes the following Notice —

1. This Notice may be cited as the Seychelles Bureau of Standards (Standard Specification for Concrete Blocks) Notice, 1991 and shall come into operation on the 21st October, 1991.

Citation and
commence-
ment

2. The President, being the Minister responsible for the administration of the Seychelles Bureau of Standards Act, 1987, declares the standard specification set out in the Schedule to be mandatory standard specification for concrete blocks.

Mandatory
standard
specifically
for concrete
blocks

SCHEDULE

(reg. 2)

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SECTION ONE : GENERAL

1.1 Scope

This standard specification specifies materials, tolerances and minimum performance levels for concrete blocks. It covers solid (including aerated concrete), cellular and hollow blocks not exceeding 650 mm in any work size dimension.

Units in which the height¹ exceeds the length or six times the thickness are outside the scope of this standard specification.

Concrete paving blocks are outside the scope of this standard specification.

1.2 References

The titles of the standards publications referred to in this standard specification are listed at the end of the Schedule.

1.3 Definitions

For the purpose of this standard specification the following definitions apply:

- 1.3.1 Blocks: A walling unit (other than a unit used for bonding e.g. half block) greater than 215 mm, 100 mm and 65 mm being the dimensions of a brick. The height of block shall not exceed either its length or six times its thickness to avoid confusion with slabs or panels.
- 1.3.2 Solid Blocks: A block shall be deemed to be solid if the solid material is not less than 75 % of the total designed volume of the block calculated from the overall dimensions.
- 1.3.3 Hollow Blocks: A block shall be deemed hollow if it has one or more large holes or cavities which pass through the block and the solid material is between 50 % and 75 % of the total designed volume of the block calculated from the overall dimensions.
- 1.3.4 Cellular Block:: A block shall be deemed to be cellular if it has one or more moulded holes or cavities which do not effectively pass through the block and the solid material is between 50 % and 75 % of the total designed volume of the block calculated from the overall dimension.
- 1.3.5 Aerated Concrete Block: A high pressure steam cured (autoclave) block consisting essentially of an inorganic cementing agent, with or without the addition of suitable fine inorganic aggregate, the aerated structure being formed either by generation of a gas by a chemical action within the mix prior to hardening or a mechanical incorporation of air or other gas into the mix with the aid of suitable foaming agents and mix devices.
- 1.3.6 Coordinating Size: A size of the space, bounded by coordinating planes, allocated to a component including the allowance for joints and tolerance.
- 1.3.7 Work Size: A size of a building component specified for the manufacture to which its actual size should conform within specified permissible deviation.
- 1 The height is taken to be the vertical perpendicular to the base when the unit is used in its normal aspect.

SECTION TWO : MATERIALS

2.1 Binder

Materials complying with any of the following British Standards² may be used at the discretion of the manufacturers:

Type of binder	Standards to be complied with
Ordinary and Rapid Hardening Portland Cement	BS 12
Sulphate Resisting Portland Cement	BS 4027
Lime	BS 890 or, for autoclave blocks, other types of lime provided that they are finely ground to prevent inclusion of lumps in the finished products.

2.2 Aggregates

The proportion by mass of lime to cement shall be within the following limits, unless the units are autoclave:

Lime less or equal to 10 %, Cement greater or equal to 90 %.

For autoclave blocks, lime not complying with the requirements of BS 890 shall be finely ground to prevent inclusion of lumps in the finished products.

The aggregates at the mixer shall be clean and free from deleterious matter so as to not impair the strength of the block as referred to in clause 4.5.

Concrete blocks shall be made using one or more of the following aggregates:

Gravel

Natural aggregates (BS 882, except grading requirements in BS 882, clause 5)

Crusher dust

Where the aggregate or cement is not covered by this standard specification, the manufacturer of the blocks shall satisfy the Seychelles Bureau of Standards with authoritative evidence that the blocks are suitable for the purpose for which they are to be used.

SECTION THREE : QUALITY REQUIREMENT

3.1 End and bedding surface

The faces and ends of the concrete blocks shall be perpendicular to each other within the dimensions and tolerances specified in clause 4.4. The vertical faces may be tongued and grooved.

- 2 British Standards are referred to in this Standard as they are well known to local civil engineers and ISO equivalents do not exist.

3.2 Cavities

The total width of cavity in any block, measured at right angles to the faces of the blocks as laid in the wall, shall not exceed 65 % of the thickness of the block. The volume of cavity in the block, shall not exceed 50 % of the gross volume of the block.

3.3 Surfaces

When intended for use with rendering or plastering, the surface characteristics of the blocks shall be such as to provide a satisfactory bond.

SECTION FOUR : DIMENSIONS, TOLERANCES AND STRENGTH

4.1 General

The dimensions of concrete blocks shall be the sizes specified in columns 2 and 3 of Table 1 below. For the purpose of checking of dimensions, take ten whole blocks sampled in accordance with section 5 below. Fins may be removed with a carborundum stone before checking. The present dimensions of 460 mm x 225 mm may be used as the moulds have already been so designed. However, all future moulds must comply with the dimensions given in Table 1 below.

Table 1 : Dimensions of Concrete Blocks

1	2	2
LENGTH X HEIGHT		THICKNESS
Coordinating Size (Work Size) mm	Work Size mm	(Work Size) mm
460 x 210	450 x 200	75 100 150 200

4.2 Height and Length

Check the compliance of each of the ten blocks, as specified in section 5, for length at the four corners of the end faces, as shown in figure 2(a), using a GO / NOT GO gauge, as shown in figure 1. Ignore any tongue, as shown in figure 2(d). Similarly, check the compliance of each of the ten blocks for height at the six positions shown in figure 2(b).

Record each result as pass or fail.

4.3 Thickness

Measure the thickness of each of the ten blocks at the six positions shown in figure 2(c), using the callipers and the rule and measuring nearest millimetre.

Record each result.

Calculate the average of the six results to the nearest millimetre.

4.4 Tolerances

The maximum tolerance for concrete blocks measured in accordance with clauses 4.2 and 4.3 above shall be as follows:

Dimension	Maximum tolerance	
Length	+ 3 mm	- 5 mm
Height	+ 3 mm	- 5 mm
Thickness	+ 2 mm	- 2 mm average
	+ 4 mm	- 4 mm at any individual point

4.5 Strength

The average compressive strength of the sample and the corresponding lowest compressive strength of any individual block thereof shall, when determined in the manner described in ISO 4012 - 1978, be not less than the values given in Table 2 for the type and designation of the block specified.

No sample of blocks shall have an average compressive strength of less than 1.5 N/mm^2 and the strength of any individual block shall not be less than 1.2 N/mm^2 .

Type D blocks shall be used for non-load bearing purposes e.g. wall partitions up to 2.6 m high.

Table 2 : Minimum Compressive Strength

Block Type & Designation	Minimum Compressive Strength	
	(a) Average of 10 Blocks (N/mm^2)	(b) Lowest Individual Strength (N/mm^2)
A As specified by consulting En- gineer	As specified	80% of average crushing strength given in column (a)
B	7.0	5.6
C	3.5	2.8
D Non - Load Bearing	1.5	1.2

SECTION FIVE : SAMPLING

5.1 General

For the determination of compressive strength and dimensional checks, ten (10) blocks shall be sampled per consignment of 1000 blocks or part thereof.

5.2 Sampling procedure

5.2.1 Random sampling

Whenever possible, the random sampling method shall be used, in which every block in the consignment has an equal chance of being selected for the sample. Ten (10) blocks shall be selected at random from positions throughout the consignment without any consideration being given to the condition or quality of the selected blocks.

5.2.2 Representative Sampling

When random sampling is impracticable or not convenient, e.g. when the blocks form a large stack or stacks with ready access to only a limited number of blocks, a representative sampling procedure shall be used.

5.2.2.1 Sampling from a stack

The consignment shall be divided into at least six real or imaginary sections, each of similar size. An equal number of not more than four (4) blocks shall be selected at random from within each section in order to give the required number of samples without any consideration being given to the condition or quality of the selected blocks.

NOTE: It will be necessary to remove some sections of the stack or stacks in order to gain access to blocks within the body of such stacks when taking samples.

5.2.2.2 Sampling from a consignment formed of bonded packs

At least six packs shall be selected at random from the consignment. The bond around one blade or slice in each pack shall be removed and an equal number of not more than four blocks shall be sampled at random from within each of the broken slices or blades in order to give the required number of samples without any consideration being given to the condition or quality of the selected blocks.

SECTION SIX : CLASSIFICATION AND CERTIFICATION

6.1 Classification

The manufacturers shall classify and store the blocks separately according to their type and designation as described in clause 4.5. The Seychelles Bureau of Standards will then test and certify the blocks accordingly.

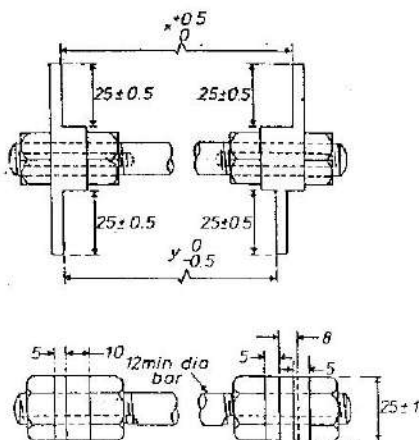
6.2 Certification

The following particulars relating to concrete blocks made in accordance with this standard specification shall be clearly indicated on the delivery note, invoice or suppliers certificate supplied with a consignment of blocks:

- (a) The name, trade mark or other means of identification of the manufacturer;

- (b) The number of this Seychelles Standard Specification, i.e. SS9, followed by the strength of the blocks in N/mm^2 : for example SS9:(1.5) indicates a concrete block of strength 1.5 N/mm^2 complying with all the requirements of SS9;
- (c) The length, height and thickness of the block and whether solid, hollow or cellular.

The supplier shall satisfy himself by regular periodical testing that at the time of delivery the blocks comply with the requirements of this standard specification and, if requested, the supplier shall provide to the purchaser a certificate to this effect.

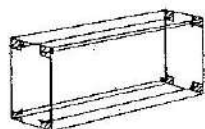


All dimensions are in millimetres.

NOTE 1. x is the specified dimension of the block plus 3mm, and y is the specified dimension of the block minus 5mm.

NOTE 2. Keys are used for keeping fittings at both ends in the same plane.

Figure 1. GO/NOT GO gauges for checking length and height of blocks.

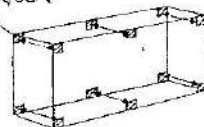


(a) Four positions for checking length of whole blocks

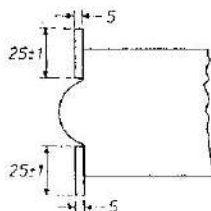


(b) Six positions for checking height of whole blocks

Maximum thickness of a cross section 25mm square



(c) Six measurement of thickness



(d) Measurement of a longed block

All dimensions are in millimetres.

Figure 2. Checking all dimensions of blocks.

REFERENCES**Standards publications referred to**

BS 12	Specification for ordinary and rapid-hardening Portland cement
BS 882	Aggregates from natural sources for concrete (including granolithic)
BS 890	Building Limes
BS 4027	Specification for sulphate-resisting Portland cement
ISO 4012	Concrete Determination of compressive strength of test specimens

MADE this 14th day of October, 1991.

F.A. RENE
PRESIDENT