



## PRODUCT MANUAL FOR PRECAST CONCRETE BLOCKS FOR PAVING ACCORDING TO IS 15658: 2006

*This Product Manual shall be used as reference material by all Regional/Branch Offices & licensees to ensure coherence of practice and transparency in operation of certification under Scheme-I of Bureau of Indian Standards (Conformity Assessment) Regulations, 2018 for various products. The document may also be used by prospective applicants desirous of obtaining BIS certification licence/certificate.*

1.	<b>Product</b>	:	IS 15658 : 2006
	<b>Title</b>	:	PRECAST CONCRETE BLOCKS FOR PAVING
	<b>No. of Amendments</b>	:	3
2.	<b>Sampling Guidelines:</b>		
a)	<b>Raw material</b>	:	-
b)	<b>Grouping guidelines</b>	:	Please refer <a href="#">ANNEX – A</a>
c)	<b>Sample Size</b>	:	40 blocks for all tests
3.	<b>List of Test Equipment</b>	:	Please refer <a href="#">ANNEX – B</a>
4.	<b>Scheme of Inspection and Testing</b>	:	Please refer <a href="#">ANNEX – C</a>
5.	<b>Possible tests in a day :</b>		
	a) Visual appearance (Clause 6.2.1) b) Dimensions and tolerance (Clause 6.2.2) c) Thickness of wearing layer (Clause 6.2.3)		
6.	<b>Scope of the Licence :</b>		
	“Licence is granted to use Standard Mark as per IS 15658 : 2006 with the following scope:		
	Name of the product	PRECAST CONCRETE BLOCKS FOR PAVING	
	Grade designation	M-30, M-35, M-40, M-50 and M-55	
	Thickness of block	--- mm (as applicable for the grade designation)	
	No of layer	Single layer / Double layer	

**ANNEX A**  
**Grouping Guidelines**

1. IS 15658 : 2006 covers Precast Concrete Blocks for Paving with the following requirements :
  - i) Grade Designation: M-30, M-35, M-40, M-50 and M-55.
  - ii) Dimensions:
    - The thickness of the blocks shall be not less than 50 mm and not more than 120 mm and shall also meet the thickness requirement specified under Table 1 of IS 15658: 2006. When agreed to between manufacturer and purchaser, Blocks of thickness more than 120 mm may also be manufactured.
    - Length and Width: To be specified by the manufacturer.
  - iii) Blocks can be manufactured in one layer or two layers.
2. Considering the above, Precast Concrete Blocks for Paving are categorized into the following groups based on Grade Designation:

	<b>GROUP-I</b>	<b>GROUP-II</b>
GRADE DESIGNATION	M-30, M-35, M-40	M-50, M-55

3. For GoL/CSoL, one sample from each Group having the highest Grade Designation and any thickness shall be drawn and tested for all requirements, in order to cover the complete range and grade of that Group.
4. The Firm shall declare the varieties of paver blocks intended to be covered in the Licence. The Scope of Licence may be restricted based on the Manufacturing and Testing capabilities of the Manufacturer.
5. During the operation of the Licence, BO shall ensure that all the Grade Designations, Types and Sizes covered in the Licence are tested in rotation, to the extent possible.

**ANNEX B**  
**List of Test Equipment**

*Major test equipment required to test as per the Indian Standard*

Sl. No.	Tests used in with Clause Reference	Test Equipment
1	Aggregates (clause 4.2)	- Test sieves for aggregate testing
2	Dimensions, tolerance and thickness of wearing layer (clause 6.2.2, 6.2.3)	- Steel calipers - Steel rules/Vernier caliper - Weighing balance - Sheets of thin cardboard of uniform thickness - Sharp pencil - Sharp scissors - Odd leg marking gauge - Engineers square or profiled template - Feeler gauge
3	Water absorption ( clause 6.2.4)	- Weighing balance - Drying air oven
4	Compressive strength (clause 6.2.5)	- Compression testing machine with bearing blocks and plates (rate of loading $15 \pm 3 \text{ N/mm}^2 \text{ min}$ ) - Water bath capable to maintain temperature $27 \pm 2^\circ \text{ C}$ - Capping of specimen arrangement/ plywood
5	Abrasion resistance (clause 6.2.6)	- Abrasion testing machine - Hot air oven - Weighing balance - Standard abrasive powder - Grinding disk with defined load - Stop watch
6	Tensile splitting strength (clause 6.2.7)	- Testing machine with rigid bearers of radius $75 \pm 5 \text{ mm}$ - Packing piece thickness $4 \pm 1 \text{ mm}$ & width $15 \pm 1 \text{ mm}$ - Water bath capable to maintain temperature $27 \pm 2^\circ \text{ C}$

7	Flexural strength /breaking load (clause 6.2.8)	<ul style="list-style-type: none"><li>- Testing apparatus with rollers of diameter 25 - 40 mm</li><li>- Loading machine with rate 6 kN/min</li></ul>
8	Freeze–thaw durability (clause 6.3.3)	<ul style="list-style-type: none"><li>- Freezing cabinet/cold room : <math>-15 \pm 2</math> °C</li><li>- Thawing chamber : <math>23 \pm 3</math> °C</li><li>- Moist chamber : temperature <math>23 \pm 2</math> °C &amp; humidity 90 %</li><li>- Weighing balance</li><li>- Container</li></ul>

*The above list is indicative only and may not be treated as exhaustive.*

**ANNEX C**

**Scheme of Inspection and Testing**

**1. LABORATORY** - A laboratory shall be maintained which shall be suitably equipped (as per the requirement given in column 2 of Table 1) and staffed, where different tests given in the specification shall be carried out in accordance with the methods given in the specification.

**1.1** The manufacturer shall prepare a calibration plan for the test equipments.

**2. TEST RECORDS** –The manufacturer shall maintain test records for the tests carried out to establish conformity.

**3. LABELLING AND MARKING**– As per the requirements of IS 15658: 2006.

**4. CONTROL UNIT** – Every 25000 Precast Concrete Blocks for Paving or part thereof of same size/shape and grade manufactured under identical condition from raw material of same source in a week shall constitute one control unit.

**5. LEVELS OF CONTROL** - The tests as indicated in column 1 of Table 1 and the levels of control submitted by the manufacturer in column 3 of Table 1, shall be carried out on the whole production of the factory which is covered by this plan and appropriate records maintained in accordance with paragraph 2 above.

**5.1** All the production which conforms to the Indian Standard and covered by the licence should be marked with Standard Mark.

**6. REJECTIONS**–Disposal of non-conforming product shall be done in such a way so as to ensure that there is no violation of provisions of BIS Act, 2016.

**TABLE 1**

(1)				(2)	(3)		
Test Details				Test equipment requirement R: required (or) S: Sub-contracting permitted	Recommended Levels of Control		
Clause	Requirement	Test Methods Clause Reference			No. of Sample*	Frequency	Remarks
4.1.1	Cement	4.1.1	IS 15658	S	-	-	Shall be ISI marked and received with test certificate.
4.1.2	Mineral Admixture	4.1.2	IS 15658	S	One	Once in three month for each type and source of admixture supply	No further testing is required, if accompanied with test certificate or ISI marked.
4.2	Aggregates	4.2	IS 15658	S  R (for sieve analysis only)	One	Once in a year for each source and size	Additional sample shall be tested whenever there is change of source of supply of material. Maximum aggregate size used in manufacturing shall be ensured in house for each consignment received or once in a week, whichever is earlier. No further testing is required, if accompanied with test certificate or ISI marked
4.3	Admixtures	4.3	IS 15658	S	One	Each consignment	No further testing is required, if accompanied with test certificate or ISI marked
4.4	Pigments	4.4	IS 15658	S	One	Each consignment	
4.5	Water	4.5	IS 15658	S	One	Once in a year for each source	Additional testing is required whenever there is change of source.
6.1.2, 6.1.3 6.1.4	General – Visual Inspection	6.1.2, 6.1.3, 6.1.4	IS 15658	-	Each block	-	-

6.2.1	Visual Inspection	6.2.1	IS 15658	R	Two	Each control unit	-
6.2.2	Dimensions and Tolerances	6.2.2.1, 6.2.2.2 Annex B	IS 15658	R	Eight blocks	Each control unit	-
6.2.3	Thickness of wearing Layer	6.2.3	IS 15658	R	Eight blocks	Each control unit	-
6.2.4	Water Absorption	6.2.4 and Annex C	IS 15658	R	Three blocks	Once in a month	-
6.2.5	Compressive Strength	6.2.5.1, 6.2.5.2 Annex D	IS 15658	R	Four blocks	Once in a month	Samples may be selected in such a manner that over a period of time, paver blocks of all grades, shapes and sizes etc are tested.
6.2.6	Abrasion Resistance	6.2.6 and Annex E	IS 15658	R	Four blocks	Once in a month	
6.2.7	Tensile Splitting Strength	6.3.1 and Annex F	IS 15658	S	Four blocks	Once in six months	
6.2.8	Flexural strength/ Breaking load.	6.3.2 and Annex G	IS 15658	S	Four blocks	Once in six months	
6.3.3	Freeze- thaw durability	6.3.3 and Annex H	IS 15658	S	Three blocks	As required by the Purchaser or once in a year, whichever is earlier	
6.3.4	Colour and Texture	6.3.4	IS 15658	R	Each block	-	-

\* If any sample fails, twice the number of samples from the same control unit shall be tested for that requirement and if any failure is observed in retested sample, the control unit shall be rejected.

Note-1: Sub-contracting is permitted to a laboratory recognized by the Bureau or Government laboratories empanelled by the Bureau.

Note-2: The control unit and levels of control as decided by the Bureau are obligatory to which the licensee shall comply with.