Indian Standard (Reaffirmed 1998)

SCHEDULE FOR PROPERTIES AND AVAILABILITY OF STONES FOR CONSTRUCTION PURPOSES

PART III TAMIL NADU STATE

Section 2 Engineering Properties of Building Stones

UDC 691·21·002·611 (548·1)

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INDIAN STANDARDS INSTITUTION
MANAK BHAVAN, 9 BAHADUR SHAH ZAFAR MARG
NEW DELHI 110002

July 1980

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Indian Standard

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Indian Standard

SCHEDULE FOR PROPERTIES AND AVAILABILITY OF STONES FOR CONSTRUCTION PURPOSES

PART III TAMIL NADU STATE

Section 2 Engineering Properties of Building Stones

0. FOREWORD

0.1 This Indian Standard (Part III/Sec 2) was adopted by the Indian Standards Institution on 29 February 1980, after the draft finalized by the Stones Sectional Committee had been approved by the Civil Engineering Division Council.

0.2 Stones are available in large quantities in different parts of the country. To choose and utilize them for various purposes, it is necessary to know their availability as well as their various physical properties. Accordingly this standard is formulated to cover such information. It is hoped that with the publication of this standard it would be convenient for the users to know the location of various types of stone, and it would also act as a guide for their proper selection depending upon their particular use. This standard will give a general information for prospective builders who use stone and stone aggregates. The final acceptance of these materials in any work would, however, be subject to the physical standards and other specifications and quality control requirements stipulated for individual works.

0.2.1 This standard is being published in parts, each part covering one State. For facility in compilation and use of the standard, each part is divided in three sections. Accordingly Part III covers Tamil Nadu State and is being issued in three sections.

0.3 The information contained in this section is based on the data provided by Public Works Department, Government of Tamil Nadu and covers data collected up to the end of 1979. Further information as and when available will be published as addendum to this standard.

0.4 In reporting the results of a test or analysis made in accordance with this standard, if the final value, observed or calculated is to be rounded off, it shall be done in accordance with IS : 2-1960*.

1. SCOPE

1.1 This standard (Part III/Sec 2) covers engineering properties of building stones of Tamil Nadu State.

2. TEST RESULTS

2.1 The test results of various types of building stones tested for some of the important properties according to relevant Indian Standards are given in Table 1.

*Rules for rounding off numerical values (*revised*).

TABLE 1 TEST RESULTS OF ENGINEERING PROPERTIES OF BUILDING STONES — TAMIL NADU STATE

(*Clause* 2.1)

Sl No.	Location	Rock Type	Colour (IS : 1123-1975*)	Structure and Texture (IS : 1123-1975*)	Apparent Specific Gravity (IS : 1124-1974†)	Water Absorption, Percent (IS : 1124-1974†)	Compressive Strength kg/cm² [IS : 1121 (Part I)-1974†]				Transverse Strength kg/cm² [IS : 1121 (Part II)-1974§]		Durability, Percent Loss (IS : 1126-1974‖)	Remarks
							Tested Saturated Surface Dry		Tested Dry		Tested in Wet Condition	Tested in Dry Condition		
							Parallel to grain	Perpendicular to grain	Parallel to grain	Perpendicular to grain				
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)
I	*COIMBATORE DISTRICT*													
1.	Amaravathi Nagar	Biotite gneiss	Leucocratic	Gneissic, hypidiomorphic medium grained	2·65	0·46	—	555·50	—	—	164·50	—	2·81	Low compressive strength due to the presence of biotite
2.	Coimbatore	Hornblende biotite gneiss	do	Gneissic, hypidiomorphic coarse grained	2·64	0·21	—	682·40	—	—	134·00	—	0·32	—
3.	Parambikulam Aliyar	Charnockite	do	Massive, hypidiomorphic fine grained	2·69	0·55	—	813·60	—	—	163·00	—	0·84	—
4.	Sholayar Nagar	Hornblende biotite gneiss	do	Grambitic, foliated, hypidiomorphic medium grained	2·66	0 50	—	948·20	—	—	95·48	—	4·47	—
II	*CHINGLEPUT DISTRICT*													
5.	Tiruttani	Biotite granite	Leucocratic	Massive, hypidiomorphic medium grained	2·68	0·81	—	580·70	—	—	176·00	—	0·59	Low compressive strength due to the predominance of biotite
6.	Tiruttani	do	do	Massive, hypidiomorphic coarse grained	2·63	0·70	—	798·90	—	—	191·00	—	9·54	—
III	*KANYAKUMARI DISTRICT*													
7.	Andoor Quarry Kalkulam Taluk	Genetiferous biotic gneiss	Leucocratic	Gneissic, hypidiomorphic medium grained	2·86	0·47	—	357·61	—	551·06	177·95	177·97	1·97 (20 cycles) 2·34 (34 cycles)	Low compressive strength due to predominance of granite and biotite

(*Continued*)

TABLE 1 TEST RESULTS OF ENGINEERING PROPERTIES OF BUILDING STONES — TAMIL NADU STATE — *Contd*

Sl. No.	Location	Rock Type	Colour (IS : 1123-1975*)	Structure and Texture (IS : 1123-1975*)	Apparent Specific Gravity (IS : 1124-1974†)	Water Absorption, Percent (IS : 1124-1974†)	Compressive Strength kg/cm² [IS : 1121 (Part I)-1974‡]				Transverse Strength kg/cm² [IS : 1121 (Part II)-1974§]		Durability, Percent Loss (IS : 1126-1974‖)	Remarks
							Tested Saturated Surface Dry		Tested Dry		Tested in Wet Condition	Tested in Dry Condition		
							Parallel to grain	Perpendicular to grain	Parallel to grain	Perpendicular to grain				
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)
8.	Cheruppalur	Biotite granite	Leucocratic	Massive, hypidiomorphic medium grained	2·67	0·59	—	791·80	—	—	108·00	—	5·23	—
9.	Tiruvettar	Charnockite	Leucocratic grey	do	2·79	0·22	—	738·20	—	—	198·00	—	1·17	—
IV	*MADURAI DISTRICT*													
10.	Manjalar Dam Devanampatti	Charnockite	Leucocratic brownish grey	Granular, hypidiomorphic medium grained	2·76	0·28	—	707·50	—	—	159·20	—	1·21	—
11.	Manjalar Dam	do	Leucocratic light grey	Foliated, hypidiomorphic medium grained	2·68	0·19	—	692·20	—	—	221·90	—	1·75	—
12.	Manjalar Dam	do	Leucocratic	Massive, hypidiomorphic coarse grained	2·71	0·20	—	626·60	—	—	245·00	—	1·17	—
13.	Manjalar Dam	Genetiferous gneiss	Leucocratic pinkish	Foliated, gneissic, hypidiomorphic coarse grained	2·64	—	—	760·00	—	—	—	—	3·97	—
14.	Madurai	Granite	Leucocratic	Massive, hypidiomorphic coarse grained	2·62	0·38	—	700·40	—	—	103·50	—	1·92	—
V	*NORTH ARCOT DISTRICT*													
15.	Sathanur	Charnockite	Leucocratic bluish grey	Massive, hypidiomorphic medium grained	2·73	—	—	810·40	—	—	—	—	0·39	—

(Continued)

TABLE 1 TEST RESULTS OF ENGINEERING PROPERTIES OF BUILDING STONES — TAMIL NADU STATE — *Contd*

Sl No.	Location	Rock Type	Colour (IS : 1123-1975*)	Structure and Texture (IS : 1123-1975*)	Apparent Specific Gravity (IS : 1124-1974†)	Water Absorption, Percent (IS : 1124-1974†)	Compressive Strength kg/cm² [IS : 1121 (Part I)-1974‡]				Transverse Strength kg/cm² [IS : 1121 (Part II)-1974§]		Durability, Percent Loss (IS : 1126-1974‖)	Remarks
							Tested Saturated Surface Dry		Tested Dry		Tested in Wet Condition	Tested in Dry Condition		
							Parallel to grain	Perpendicular to grain	Parallel to grain	Perpendicular to grain				
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)
VI	*BAMNAD DISTRICT*													
16.	Aruppukottai	Biotite granite gneiss	Leucocratic pink	Gneissic, massive, hypidiomorphic medium grained	2·62	0·28	—	761·10	—	—	195·00	—	0·30	—
17.	Aruppukottai	Pink granite	Leucocratic	Massive, hypidiomorphic medium grained	—	—	501·90	569·90	738·20	826·80	170·04	205·61	—	—
18.	Aruppukottai	Charnockite	Mesocratic grey	do	—	—	807·10	915·30	620·10	836·63	215·36	181·30	0·30 (20 cycles) 0·53 (30 cycles)	—
19.	Kundrakudi	Pink granite	Leucocratic	do	—	—	383·87	413·35	255·90	305·05	102·76	122·32	—	—
20.	Mandapam Camp	Coral	do	Coralline,	1·14	30·66	—	156·40	—	—	—	39·80	4·00	—
21.	Srivilliputhur	Charnockite	Leucocratic grey	Massive, hypidiomorphic medium grained	2·67	0·59	406·80	458·90	246·00	488·70	196·93	174·00	1·28 (20 cycles) 1·57 (30 cycles)	—
22.	Thirumelai Quarry Sivaganga	Granite gneiss	Leucocratic	Gneissic, foliated, hypidiomorphic medium grained	—	—	244·54	265·09	515·53	662·00	158·10	152·61	—	Disintegrated after 10 cycles
23.	Va chiyur Quarry Sivaganga	do	do	do	—	—	277·39	456·02	564·79	656·19	138·16	130·50	—	Disintegrated after 9 cycles
VII	*SALEM DISTRICT*													
24.	Kondampatti Village Namakkal Taluk	Charnockite	Mesocratic	Massive, hypidiomorphic	2·85	0·24	—	1 266·46	—	1 053·19	218·81	201·54	0·25 (20 cycles) 0·34 (30 cycles)	—
25.	Uttambadi Quarry Namakkal Taluk	do	do	Massive, hypidiomorphic medium grained	2·99	0·34	—	736·26	—	753·63	205·62	221·46	0·28 (20 cycles) 0·39 (30 cycles)	—

(*Continued*)

TABLE 1 TEST RESULTS OF ENGINEERING PROPERTIES OF BUILDING STONES — TAMIL NADU STATE — *Contd*

Sl No.	Location	Rock Type	Colour (IS : 1123-1975*)	Structure and Texture (IS : 1123-1975*)	Apparent Specific Gravity (IS : 1124-1974†)	Water Absorption, Percent (IS : 1124-1974†)	Compressive Strength kg/cm² [IS : 1121 (Part I)-1974‡]				Transverse Strength kg/cm² [IS : 1121 (Part II)-1974§]		Durability, Percent Loss (IS : 1126-1974‖)	Remarks
							Tested Saturated Surface Dry		Tested Dry		Tested in Wet Condition	Tested in Dry Condition		
							Parallel to grain	Perpendicular to grain	Parallel to grain	Perpendicular to grain				
(1)	( ) (2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)
VIII	*SOUTH ARCOT DISTRICT*													
26.	Kallakurichi	Charnockite	Mesocratic	Massive, hypidiomorphic medium grained	2·68	0·24	—	636·51	—	708·80	—	—	0·65 (20 cycles) 0·76 (30 cycles)	—
27.	Peramakal Quarry Tindivanam Taluk	do	do	do	2·76	0·27	—	954·70	—	782·50	237·76	304·50	0·99 (20 cycles) 1·23 (30 cycles)	—
28.	Tiruvakari Quarry Tindivanam Taluk	Granite	Leucocratic	do	3 04	0·13	—	690·44	—	706·77	174·25	161·09	0·80 (20 cycles) 1·11 (30 cycles)	—
29.	Tiruvakkarai Quarry Tindivanam Taluk	Charnockite	Mesocratic	do	2·81	0·24	—	398·31	—	410·12	292·64	225 41	0·89 (20 cycles) 1·25 (30 cycles)	—
30.	Tirukoilur Anthibi + Quarry	Granite	Leucocratic	do	2·64	0·38	—	663·37	—	830·99	126·37	122·59	1·99 (20 cycles) 2·77 (30 cycles)	—
IX	*TIRUNELVELI DISTRICT*													
31.	Ambasamudram	Charnockite	Mesocratic	Massive, hypidiomorphic medium grained	—	—	351·52	515·55	451·13	456 99	143·91	157·10	0·60 (20 cycles) 0·70 (30 cycles)	—
32.	Manimuthar Tirunelveli	do	Leucocratic bluish grey	do	2·66	0·40	574·17	928·63	495·06	749·93	303·19	234·64	1·89 (20 cycles) 2·19 (30 cycles)	—
X	*TIRUCHI DISTRICT*													
33.	Easini Quarry Perambalur Taluk	Charnockite	Mesocratic	Massive, hypidiomorphic	2·77	0·22	—	544·61	672·59	—	—	—	0·96 (20 cycles) 12·5 (30 cycles)	—

*Method of identification of natural building stones (*first revision*).
†Method of test for determination of water absorption, apparent specific gravity and porosity of natural building stones (*first revision*).
‡Method of test for determination of strength properties of natural building stones: Part I Compressive strength (*first revision*).
§Method of test for determination of strength properties of natural building stones: Part II Transverse strength (*first revision*).
‖Method of test for determination of durability of natural building stones (*first revision*).