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MADRAS RECORD OFFICE

Government of Madras

Public Works DEPARTMENT

G.O. No.	3105	Press
B.P. No.		Mis.
Dated	20-11-1957	6876

Not to be folded or roughly handled

*Proceedings of the Madras Government, Public Works Department,
20th November 1876. No. 3,105.*

Read the following papers:—

No. 347. From F. N. THOROWGOOD, Esq., Superintendent, Madras Harbour Works, to Major-General G. W. WALKER, R.E., Secretary to Government, Public Works Department, dated Madras, 31st October 1876, No. 83 W.

I HAVE the honor to submit to you the following results of experiments made on General Morgan's Cement as directed in G.O., No. 2,740, dated 12th October. The experiments were concluded on 28th October 1876.

2. In each case the test was one of transverse strain, the dimensions of the block or brick of cement being 2' 6" x 6" x 6".

3. The brick was supported at the ends so as to leave a clear space of 2' between supports, and the load was applied gradually by means of weights hanging from the centre of the brick.

4. I give the results as compared with the results from similar experiments made at the same time on English cement of known good quality.

Experiments on Cement mixed with Sand in different proportions.

Number of Experiments.	Maker's Name.	Proportion of sand in brick.	Age.	Wet or Dry.	Breaking weight, lbs.	Remarks.
1	Gillingham Company ...	3 Sand ... 3 Stone ... 1 Cement.	2 months.	Dry.	1,217	Broke in centre.
	Wouldham Company ...	Do. ...	Do. ...	Do.	1,060	Do.
	General Morgan ...	Do. ...	Do. ...	Do.	1,077	Do.
2	Gillingham ...	Do. ...	7 days.	Do.	584	Do.
	Wouldham ...	Do. ...	Do. ...	Do.	574	...
	General Morgan's ...	Do. ...	Do. ...	Do.	342	...
3	Do. ...	Do. ...	Do. ...	Wet.	203	Broke into three pieces.
	Gillingham ...	Do. ...	Do. ...	Do.	454	Broke in centre.
	General Morgan's ...	Do. ...	Do. ...	Do.	313	...
4	Do. ...	Do. ...	...	Dry.	298	...
	Wouldham ...	3 Sand ... 1 Cement.	7 days.	Wet.	685	Broke in centre.
	Do. ...	Do. ...	...	Do.	715	...
	Do. ...	Do. ...	...	Do.	450	A bad specimen.
	General Morgan ...	Do. ...	...	Do.	448	...
	Do. ...	Do. ...	...	...	392	...
	Do. ...	Do. ...	...	...	357	Broke into three pieces.

A small concrete block, made of six parts of sand and gravel to one of cement, was suspended in the sea after having been left for nine days to set. It was taken out of the sea at the end of eleven days (making twenty days for its whole age) and was still soft and easily broken, but after remaining in the air for another fortnight it became properly hardened.

(Signed) F. N. THOROWGOOD,
Superintendent, Madras Harbour Works.

No. 347-A. From the same Officer, dated Madras, 3rd November 1876, No. 84 W.

I HAVE the honor to enclose, for the consideration of Government, a form of advertisement for tenders for the supply of Indian cement, already referred to in my report of 31st October.

2. It will be observed that it differs entirely from the form of specification submitted to Government by Mr. Beardmore on 21st July 1876, and which His Grace

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*Proceedings of the Madras Government, Public Works Department,
20th November 1876. No. 3,105.*

the Governor in Council was pleased to approve of (*vide* G.O., No. 2,118, dated 15th August 1876).

3. Since the submitting of that specification I have had further opportunities of trying the powers of General Morgan's cement, and the results of these experiments I have reported on at different times.

4. The varying nature of these results has led me to think that a specification, such as has been submitted to Government, although admirably suited to tenders for English cement, is hardly suitable for Indian cement, the general character of which is not yet sufficiently known.

5. I think that under these circumstances no test will be sufficient excepting one that shows the cement capable of doing the same work for the same money as is done by the Portland cement of home manufacture.

MADRAS HARBOUR WORKS.

Contract for Cement.

THE Superintendent of the Madras Harbour Works is prepared to receive tenders for the supply of 2,000 tons of Hydraulic Cement, to be used in the manufacture of concrete blocks in lieu of English Portland Cement.

Half a cubic yard of concrete is to be made of the cement proposed to be supplied mixed with such proportion, as the contractor may think suitable, of the same description of broken stone and sand as are now in use at the Harbour Works.

The tender is to give the price of a sufficient measure of Cement to make a cubic yard of such concrete.

The concrete is to be made by the Harbour Works machinery under the superintendence, if he desires it, of the contractor or his agent, and is to be formed into blocks of such dimensions as the Superintendent may require.

Two bushels of the neat Cement are to be at the same time supplied.

The specimen blocks and the neat Cement are to be subjected to such tests as the Superintendent may think proper within thirty days of the manufacture of the former, and in the event of the tender being accepted the Contractor will be expected to agree to such similar tests of future supplies of Cement as the Superintendent may think necessary to ensure its quality being equal to that of the sample.

(Signed) F. N. THOROWGOOD,
Superintendent, Madras Harbour Works.

No. 348. ORDER THEREON, 20th November 1876, No. 3,105.

CIVIL WORKS, No. 24.

THE form of advertisement for tenders, as printed above, is approved.

2. The results of further experiments on General Morgan's cement will be awaited.

(True Extract.)

Major-General, R.E.,
Secretary to Government.

To the Superintendent, Madras Harbour Works.

Frd. S. T. Austin.

Spare Copies

*Letter from the Superintendent, Madras
Harbour Works, No 84 to 873 Nov 76.*

FOR ORDERS.

*Commander Major General
Secretary to Govt of Mad*

J.P. 55

Madras Harbour Works.

Contract for Cement.

The Superintendent of the Madras Harbour Works is prepared to receive tenders for the supply of 2000 tons of Hydraulic Cement to be used in the manufacture of Concrete blocks in lieu of English Portland Cement.

Half a cubic yard of concrete is to be made of the cement proposed to be supplied mixed with such proportion, as the Contractor may think suitable of the same description of broken stone and sand as are now in use at the Harbour Works.

The tender is to give the price of a sufficient measure of cement to make a cubic yard of such concrete.

The concrete is to be made by the Harbour Works machinery under the Superintendence if he desires it, of the Contractor or his Agent, and is to be formed into blocks of such dimensions as the Superintendent may require.

Two bushels of the neat cement are to be at the same time supplied. —

The specimen blocks and the neat cement are to be subjected to such tests as the Superintendent may think proper within 30 days of the manufacture of the former and in the event of the tender being accepted the Contractor will be expected to agree to such tests of future supplies of cement as the Superintendent may think necessary to ensure its quality being equal to that of the sample. —

J. N. Morrowford.

Superintendent

Madras Harbour Works

No. 84 W.

From

THE SUPERINTENDENT,
MADRAS HARBOUR WORKS,

To Major General G. W. Walker, R. E.
Secretary to Government,
Public Works Department,
MADRAS, 3rd November 1876.

SIR,

I have the honour to inclose for the consideration of Government a form of advertisement for tenders for the supply of Indian cement, already referred to in my Report of October 31st.

2. It will be observed that it differs entirely from the form of specification submitted to Government by Mr. Beardmore on 27th July 1876, and which His Grace the Governor in Council was pleased to approve of (vide G. O. at 2118, dated August 15. 1876). —

3. Since the submitting of that specification I have had further opportunities of trying the powers of General Morgan's cement, and the results of these experiments I have reported on at different times. —

4. The varying nature of these results has led me to think that a specification

such as has been submitted to Government,
although admirably suited to tenders for
English cement is hardly suitable for Indian
cement, the general character of which is
not yet sufficiently known.

I think that under these circumstances
no test will be sufficient excepting one that
shall show the cement capable of doing the same
work for the same money as is done by
the Portland Cement of home manufacture.

I have the honour to be,
Sir,
Your most obedient servant,
J. H. Thoroughgood,
Superintendent
Madras Harbour Works

S-76 h. 2118
10-76 - 2740.

From No. 7957
The Superintendent
Madras Harbour Works
To The Secretary to Government
Public Works Department,
Fort St. George

Dated 3rd Nov 1876
Recd
at St. N
Encl. 1

Submits for approval
form of advertisement for
the supply of Indian
Cement.

347a

No. 8314

From

THE SUPERINTENDENT,
MADRAS HARBOUR WORKS.

To

Major Genl: E. W. Walker R. C.
Secretary to Government
Public Works Department.

MADRAS 31st October 1876.

SIR,

I have the honor to submit to you
the following results of experiments made on
General Morgan's Cement, as directed in G. O.
No 2740, dated 12th October. The experiments were
concluded on October 28th 1876.

In each case the test was one
of transverse strain, the dimensions of the
block or brick of cement being 2.6 x 6 x 6".

The brick was supported at the ends
so as to leave a clear span of 2.5" between supports
and the load was applied gradually by means
of weights hanging from the centre of the brick.

I give the results as compared with
the results from similar experiments made at the
same time on English cement of known good
quality.

I have the honor to be
Sir

Your most obedient servant
J. H. Hargood.
Superintendent.

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Experiments in Cement
mixed with sand in different proportions

No. of Experiments	Makers Name	Proportion of sand in brick	Age	Wet or Dry	Breaking weight lbs	Remarks
1	Gillingham & Co.	3 sand 3 stone 1 cement	21 months	Dry	1217	Broke in centre
	Woolthorpe & Co.	do	do	do	1060	Broke in centre
	Gent: Morgan	do	do	do	1077	Broke in centre
	Gillingham	do	7 days	Dry	58 1/4	Broke in centre
2	Woolthorpe	do	do	Dry	57 1/4	"
	Gent: Morgan's	do	do	Dry	342	"
	do	do	do	Wet	203	Broke into 3 pieces
	Gillingham	do	7 days	Wet	145 1/4	Broke in centre
3	Gent: Morgan's	do	do	Wet	313	"
	do	"	"	Dry	298	"
	Woolthorpe	3 sand 1 cement	7 days	Wet	685	Broke in centre
	Woolthorpe	do	"	Wet	715	"
4	Woolthorpe	do	"	Wet	450	A bad specimen
	Woolthorpe	do	"	Wet	448	"
	Gent: Morgan	do	"	"	392	"
	do	do	"	"	357	Broke in three pieces

5. A small concrete block made of 6 parts of sand and gravel to one of cement was suspended in the sea after having been left for 9 days to set. It was taken out of the sea at the end of eleven days (making 20 days for its whole age) and was still soft and easily broken, but after remaining in the air for another fortnight it became properly hardened.

J. N. Harrowood.
Superintendent.
Madras Harbour Works.

9015-8-76-2118
12-10-76-2740

From 1902

The Superintendent
Madras Harbor Works
Madras

The Secretary to Government
Public Works Department
Fort St. George

Dated 31st October 1876
Recd. N 8311

Submits experiments on
Cement.

N 347

Oct 4-11-76

N 3405

Public Works Department.

PROCEEDINGS OF THE MADRAS GOVERNMENT.

Under date the 20th Nov 76
Read the following :-

From
The Super^r Madras
Harbour Works

N 83 N dated 3/10/76
N 84 N dated 3rd Nov 1876

The form of a directive
sent for tenders, as
printed above, is approved.
2. The result of further
experiments on General
Morgan's Cement will be
awaited.

C.M.W.

Super^r Mr. Harbour Works
Dated 27-11-76

1957/8
79/9
Gobi. of Madras.
PUBLIC WORKS.



To

The Sup^t Madras Harbour
Works

Dated

Issued

Recd.

Encl.

G. O. 20th Nov^r 1876, No. 3105

Nos. 347-348

Indian Cement for Harbour Works - The form
of advertisement intended
in the supply of - and
the results of further
experiments on some
foreign cement are attached.