

- (1) பக்கங்களின் எண்ணிக்கை 12.
 (2) புதுக்கித் திருப்பிய நாள் 8/89
 (3) ஆதாரங்குறிப்பவர் சுருக்கொப்பம் லா

தமிழ்நாடு ஆவணக் காப்பகம்.

(A9)

தமிழ்நாடு அரசு

PWD துறை

அரசாணை எண். மு. கோப்புத் தாள் எண்.	2241	அச்சகம் பலவகை
நாள் :	16.8.1889	198

மடிக்கவோ கண்டபடி கையாளவோ கூடாது

6 sheets

16TH AUGUST 1889, No. 2241 W., PUBLIC WORKS.

GOVERNMENT OF MADRAS.

PUBLIC WORKS DEPARTMENT.

Buildings and Roads.
Civil Works.

1924

READ—the following paper:—

From J. W. BRASSINGTON, Esq., Consulting Architect to the Government of Madras, to the Chief Engineer, Public Works Department, dated Chépák, 7th August 1889, No. 681.

With reference to G.O., No. 835 W., dated the 27th March 1884, I have the honor to report that a quantity of lime from shells washed with soft water before passing through the kiln was obtained by this office in communication with the Executive Engineer, Presidency Division, in May 1884, and a piece of walling at the Ophthalmic Hospital then under construction plastered with it. The same care appears to have been taken in the laying of the plastering with this lime and the rest of the building plastered with the usual lime supplied by the Government kilns, and up to this time there appears to be no difference between the two, both being in a good state of preservation.

2. I noticed that the white crust appears in all brick buildings soon after construction, but in a year or two wears away, as in the case of Public Works Department offices, the brickwork not being apparently affected by it.

3. "Taylor's patent damp proof course" was used in the Ophthalmic Hospital. It has to be imported from England and is expensive. I consider that the facing of the plinth with stone or plastering with Portland cement will answer very well in this place, as brickwork generally corrodes at the plinth. I have invariably followed the latter course during the period I have been in charge of this division, and although the cost of cement-plastering is about three times that of pointing or chunam-plastering, yet it will be more economical in the end as it will be far more durable.

ORDER—dated 16th August 1889, No. 2241 W., Public Works.

Recorded.

(True Extract.)

Captain, R.E.,
Under-Secy. to Govt., P.W.D.

To the Consulting Architect to Government.
" Superintending Engineer, V Circle.

Exd. J. Henricus.
Spare Copies

BUILDINGS AND ROADS.
CIVIL WORKS.

Govt. of {1889} Madras.

PUBLIC WORKS.

Dated August, 16th.

Recd.

Encl.

G.O., 16th Aug. 1889, No. 2241 W.

AUGUST.

Buildings

Report of the Consulting Architect on the trial of the remedies recommended for removing the efflorescence on the walls of the —, recorded.

27TH MARCH 1884, No. 835 W., PUBLIC WORKS.

2241
GOVERNMENT OF MADRAS.

PUBLIC WORKS DEPARTMENT.

Buildings and Roads.
Civil Works.

READ—the following letter from Major J. L. L. MORANT, R.E., Officiating Consulting Architect to Government, to the Chief Engineer, Public Works Department, dated Madras, 25th March 1884, No. 1693 :—

I have the honor to inform you that I asked the Chemical Examiner of Madras to be so good as to examine the efflorescence found on the walls of the Public Works offices, Chepāk, and to suggest a remedy. He most kindly thoroughly examined our lime, sand, mortar, burnt bricks, and the clay from which they are made, and after a careful investigation and mature consideration reports that the efflorescence is due mainly to the mortar. He suggests the following preventive remedies :—

- (1) Removing the salt in the sea-shells by having them washed in soft water before they are burnt for lime.
- (2) The introduction of damp proof courses in the walls at a convenient level above the ground.
2. Perhaps you may see fit to order the Government officer, in whose charge the burning of shells for lime is, to adopt the first proposed remedy.
3. The Calcutta Engineers have lately taken to building into their walls at about basement level a course of vitrified stoneware bars, called "Taylor's patent damp proof course," obtained from the Broomhall Tile and Brick Company, Cox's Wharf, Upper Ground Street, Blackfriars, London. These might, in the first instance, be obtained from that firm, and perhaps afterwards they might be manufactured in India. The vitrified bars are shaped something like double-headed railway rails and, when laid together in cement, allow an air passage between the hollow chambers thereby formed.
4. That the efflorescence complained of is not solely an Indian product the following extract from a London professional paper will show :—

"The extensive use of red bricks, which have been made of late years for houses and public buildings, has caused a good deal of attention to be paid to a curious disfigurement to which such structures are liable, in the form of a kind of white mould which is apt to creep over their surfaces. The best of buildings are quite as subject to this disfigurement as the worst, the new Technical College at South Kensington, for instance, being just now covered in places with this objectionable kind of eruption, which is not very generally understood, and for which no remedy has yet been found except time. An American paper publishes one or two scientific opinions on the matter, one being that of the President of the Academy of Natural Science. According to this authority, the white efflorescence is simply ordinary Epsom salts, or sulphate of magnesia, and the production of it on brick surfaces must be regarded as evidence of the presence of sulphuric acid in the air, the result of coal burning. There is magnesia in the mortar with which the walls are built, and there is sulphuric acid in the air and in the presence of moisture a chemical combination takes place, the result being sulphate of magnesia. This dissolves in the rain and runs down over the bricks, and evaporation leaves the white deposit. Another chemist agrees that this is the way in which the efflorescence is produced, but thinks that it is potash with which the sulphuric acid combines, and that the white is sulphate of potash, while another authority considers it to be sulphate of lime. All agree, however, that it is the sulphuric acid in the air which causes this disfigurement, and this is really the important aspect of the matter."

5. I append a copy of the Chemical Examiner's letter.
- 2

ENCLOSURE.

From T. K. ROGERS, Esq., M.B., F.R.C.S., F.I.C., AND F.C.S., Lond., Chemical Examiner, to the Consulting Architect to Government, dated Madras, 29th January 1884, No. 1586.

In reply to your letter, No. 1389, dated 19th January 1884, I have the honor to state that the efflorescence has been found to be chiefly composed of carbonate of soda.

2. It was found that soda carbonate was present in one of the bricks and also in both samples of clay, but the quantity found was so trifling that it is improbable that the efflorescence could have been to any important extent due to the bricks. The following facts also support this view of the case :—

- (1) Bricks after simple exposure for many weeks do not show efflorescence beyond a trifling amount.
- (2) Bricks frequently wetted with distilled water and allowed to dry gave a similar result.
3. On examining the samples of chunam and cement it was found that they both contained soda and soda carbonate in considerable amount. I think therefore that the chunam and cement are to be regarded as the important sources of the efflorescence of soda carbonate.
4. The preventive measures which I would suggest are as follows, viz. :—
 - (1) The removal of the common salt mixed with the sea-shells used for making chunam or cement. This can probably be done by simply washing the shells with soft water before burning them.
 - (2) The use of dry courses at a convenient level above the ground. This suggestion is made because it is believed that in certain places a good deal of water rises into the walls from the ground. And when water contained in walls evaporates, a considerable portion of the salts which were in solution is deposited on the surface.

ORDER—dated 27th March 1884, No. 835 W., Public Works.

The Consulting Architect will make trial of the remedies recommended, and report thereon in due course.

(True Extract.)

(Signed) J. SHAW-STEWART, Colonel, R.E.,
Secretary to Govt., P.W.D.

To the Consulting Architect to Government.
„ Superintending Engineer, V Circle.

Exd. E. Fernandez.
Spare Copies

22/4/1

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BUILDINGS AND ROADS.
CIVIL WORKS.

Govt. of (1884) Madras.
PUBLIC WORKS.

Dated March, 27th.

Recd.

Encl.

G.O., 27th March 1884, No. 835 W.

MARCH.

224/4

Public Works Offices, Chepak

The Consulting Architect directed to make trial of the remedies recommended for removing the efflorescence found on the walls of the —.

1.

P. W. D.

Office of the Consulting Architect to Govt.,
Chepak, Madras,

7th August 1883.

No. 687

From

J. W. Brassington, Esq.,

Consulting Architect

to the Government of Madras,

To

The Chief Engineer

Public Works Department

Sir,

Enclosures

With reference to G.O. No. 835 W. dated the 27th March 1884, I have the honor to report that a quantity of lime from shells washed with soft water before passing through the kilns, was obtained by this office in communication with the Executive Engineer, Presidency Division, in May 1884 and a piece of walling at the Ophthalmic Hospital then under construction, plastered with it. The same care appears to have been taken in the laying of the plastering with this lime and the rest of the building plastered with the usual lime supplied by the Government kilns, and up to this time there appears to be no difference between the two, both being in a good state of preservation.

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brickwork not being apparently affected by it.

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of the plinth with stone, or plastering with Portland Cement
will answer very well in this place, as brickwork generally
corrodes at the plinth. I have invariably followed the latter
course during the period I have been in charge of this
Division, and although the cost of cement plastering is about
three times that of pointing or chunnam plastering,
yet it will be more economical in the end as it will
be ^{more} durable.

I have the honor to be
Sir

Your most obedient servant

J. W. K. Assington
Consulting Architect to
Government.

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835 W 707.3.84

VP BMR
cl work

From

P. W. 19
PWC 73725

The Consulting Architect
to the Government of
Madras

Y.

The Chief Engineer
P. W. 19

N^o 681

Dated 7th August 1889
12.8.89
Encls.

Subject

Submitting a report on trial
of remedies for removing the
efflorescence found on the walls
of buildings.

With order.

No. 2241 of 16th August 1889

Hm

A

14th 13th Aug.
Recorded.

WMB
9.8.89
Queer
12.8.89

Y. 12/8/89

Ch. Dept. ✓ 2/10
S.C. V Circle

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2241

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Govt. of Madras.

PUBLIC WORKS.



Dated

Recd

Encl

G.O. 16 Aug 1889 No. 22414

Buildings

Report of the Architect
on the trial of
the remedies now
employed for removing
the efflorescence on
the walls of the
masonry.

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