TR 10-143-144

# R. 487

## CLAY AND SAND FROM HUTTON'S BRICK WORKS, LAUNCESTON

*Samples*

Two samples of clay and one of sand were submitted by Mr. K. Wadley of Hutton's Bricks Pty. Ltd., Launceston, for pressed brick manufacturing tests.

The samples were marked as follows:—

No. 1 Hutton's clay.
No. 2 Youngtown clay.
No. 3 Hutton's sand.

*Investigation*

Sample No. 1 was stated to represent material currently used for brick manufacture at the works. Bricks from this material burn generally to a very pale orange colour and tests were required to indicate whether it would be possible to blend in a small amount of No. 2 to produce bricks of a darker colour when fired.

A second series of tests was requested to indicate the minimum amount of No. 2 which could be blended with No. 3 to produce a sound brick.

Four blends of Nos 1 and 2 were tested, compositions ranging from approximately 16 to 33 per cent by weight of sample No. 2.

Six blends of Nos 2 and 3 were tested, compositions ranging from 12 to 50 per cent by weight of No. 2.

All test pieces were semi-dry pressed and firing was restricted to one temperature only, 1050°C. Dried specimens from each pressing were handed to Mr. Wadley for comparative firing tests in Hutton's kiln.

*Summary*

1. Bricks of good quality and appearance were made from all blends of samples 1 and 2. However, variation in colour in the different blends is not significant and all fired specimens in this series were pale pink in colour. It is not anticipated that any significant colour change would be achieved by increasing the proportion of sample No. 2 beyond the 33 per cent investigated.

2. All bricks from blends of samples No. 2 and No. 3 exhibited serious defects in the fired product. Most important of these is very low transverse breaking strength—bricks containing 50 per cent by weight of sample No. 2 may be broken by hand. Other defects are slight surface cracking, easily abraded edges and corners, and a generally sandy texture.

It is considered that unwarranted amounts of sample No. 2 would have to be used to produce a sound brick in blends with sample No. 3 under the conditions tested.

Alternatively, firing to a higher temperature may result in the production of a sounder brick from these blends. This aspect was not investigated.

Samples of fired test pieces from all blends tested have been submitted to Mr. Wadley for assessment and comparison with similar pieces fired in Hutton's kiln.

*Blends Tested*

| Blend No. | Parts by weight | | |
|---|---|---|---|
| | No. 1 | No. 2 | No. 3 |
| A. | 2 | 1 | .... |
| B. | 3 | 1 | .... |
| C. | 4 | 1 | .... |
| D. | 5 | 1 | .... |
| E. | .... | 1 | 1 |
| F. | .... | 1 | 2 |
| G. | .... | 1 | 3 |
| H. | .... | 1 | 4 |
| I. | .... | 1 | 5 |
| J. | .... | 1 | 7 |
| No. 3 | Nil | Nil | used as is |

*Test Results*

| Blend | Per Cent | | Per Cent Contraction | | |
|---|---|---|---|---|---|
| | Moisture in Green Bricks | Firing loss at 1050°C | Drying 110°C | Firing 1050°C | Total |
| A. | 17.4 | 8.2 | 2 | 1 | 3 |
| B. | 15.4 | 8.0 | 1 | 1½ | 2½ |
| C. | 15.0 | 7.5 | 1 | ½ | 1½ |
| D. | 15.4 | 6.6 | ½ | 1½ | 2 |
| E. | 13.4 | 6.9 | ½ | 1½ | 2 |
| F. | 12.6 | 6.7 | ½ | ½ | 1 |
| G. | 12.6 | 6.1 | 1 | Nil | 1 |
| H. | 9.7 | 5.5 | ½ | Nil | ½ |
| I. | 10.4 | 4.8 | ½ | Nil | ½ |
| J. | 11.8 | 4.9 | Nil | Nil | Nil |
| No. 3 | 7.7 | 4.3 | Nil | Nil | Nil |