

**THE NATIONAL BRICK RESEARCH CENTER**

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*Results of Tests on Brick conducted in accordance with ASTM C67-08 Standard Method for Sampling and Testing*

*Brick and Structural Clay Tile*

06/21/2010

|        |  |                |                          |
|--------|--|----------------|--------------------------|
| Name:  | The Belden Brick Company<br>700 West Tuscarawas Street<br>Canton, OH 44702 | Plant:         | The Belden Brick Company |
| Phone: | 330-456-0031   | Report Number: | BBC-0087                 |
| Fax:   | 330-456-2694   | Sampled Date:  | 06/03/2010               |
|        |  | Lot:           |                          |
|        |  | Product Code:  |                          |

Sample Description: **Plt 3, Shale, No Additive**

|   |              |                 |                 |                 |                 |                 | Test Date      |
|---|--------------|-----------------|-----------------|-----------------|-----------------|-----------------|----------------|
| <b>Absorption</b>                           |              | <b>1</b>        | <b>2</b>        | <b>3</b>        | <b>4</b>        | <b>5</b>        | <b>Average</b> |
| 24 Hour Submersion in Cold Water (%)        |              | 2.37            | 2.72            | 2.93            | 2.35            | 3.26            | 2.73           |
| 5 Hour Submersion in Boiling Water (%)      |              | 4.36            | 5.25            | 4.95            | 4.50            | 5.09            | 4.83           |
| Saturation Coefficient (Ratio of 24H to 5H) |              | 0.54            | 0.52            | 0.59            | 0.52            | 0.64            | 0.56           |
| <b>Compressive Strength</b>                 |              | <b>1</b>        | <b>2</b>        | <b>3</b>        | <b>4</b>        | <b>5</b>        | <b>Average</b> |
|   | <i>psi</i>   | 10,978          | 11,810          | 12,915          | 11,374          | 12,311          | 11,878         |
|   | <i>MPa</i>   | 75.7            | 81.4            | 89.0            | 78.4            | 84.9            | 81.9           |
| <b>Efflorescence</b>                        |              | <b>11</b>       | <b>12</b>       | <b>13</b>       | <b>14</b>       | <b>15</b>       |                |
|   |              | Not Effloresced | Not Effloresced | Not Effloresced | Not Effloresced | Not Effloresced | 06/21/2010     |
| <b>IRA</b>                                  |              | <b>6</b>        | <b>7</b>        | <b>8</b>        | <b>9</b>        | <b>10</b>       | <b>Average</b> |
|   | <i>g/min</i> | 18.0            | 9.9             | 11.9            | 6.5             | 7.4             | 10.8           |
| <b>Abrasion Resistance</b>                  |              | <b>1</b>        | <b>2</b>        | <b>3</b>        | <b>4</b>        | <b>5</b>        | <b>Average</b> |
|   |              | 0.02            | 0.02            | 0.02            | 0.02            | 0.03            | 0.02           |

**The brick represented by the test results shown here comply with the standards listed below:**

ASTM C 216 - 07a Standard Specification for Facing Brick (Solid Masonry Units Made From Clay or Shale)  
Grade: SW, MW

ASTM C 902 - 09 Standard Specification for Pedestrian and Light Traffic Paving Brick  
Class: SX, MX, NX with **Molded Brick Alternate 4.1.5**

Type: I

Denis Brosnan, Director

Greg Grabert, Ph.D., Associate Director of Technical Services