

Facing Masonry Reinforced Concrete Beam Lintels to BS EN 845-2: 2003.

**Original**  
**Riverbed**  
**Lignastone**  
**Sahara**

Our pre-cast lintels are 215mm High.

They are rectangular in cross-section and the top of the units are marked to assist with the correct on-site handling and insitu building-in.

The lintels require 215mm long end bearings at both ends. Therefore to calculate the overall length of a lintel 430mm (2 x 215mm) should be added to the structural opening dimension.

The following Table gives the structural performance for several widths of lintel.

Dimensions are in mm, mass per unit area in  $\text{kg/m}^2$ , bending moments in  $\text{kN.m}$  and shear forces in  $\text{kN}$ .



Stratford Magistrate's Court

### Structural Performance - Table 1

Unit Width mm	Material	Mass per Unit Area on Elevation	Moment Capacities			Shear Capacity Ultimate Limit State
			Visible Crack	Serviceability Limit State	Ultimate Limit State	
90	Original Facing Masonry	200	1.1a	4.5b	9.3, 12.4c	6.3c,d
90	Riverbed	195	1.1a	4.5b	9.3, 12.4c	6.3c,d
90	Lignastone	185	1.1a	4.5b	9.3, 12.4c	6.3c,d
90	Sahara	185	1.1a	4.5b	9.3, 12.4c	6.3c,d
100	Original Facing Masonry	225	1.2a	5.0b	9.5, 12.7c	7.0c,d
100	Riverbed	220	1.2a	5.0b	9.5, 12.7c	7.0c,d
100	Lignastone	205	1.2a	5.0b	9.5, 12.7c	7.0c,d
100	Sahara	205	1.2a	5.0b	9.5, 12.7c	7.0c,d
140	Original Facing Masonry	315	1.7a	7.5b	14.1, 18.7c	9.8c,d
140	Riverbed	305	1.7a	7.5b	14.1, 18.7c	9.8c,d
140	Lignastone	285	1.7a	7.5b	14.1, 18.7c	9.8c,d
140	Sahara	285	1.7a	7.5b	14.1, 18.7c	9.8c,d

#### Notes:

- These values are based on test results divided by a factor of safety of 2.
- These values are based on unfactored test results.
- These values are based on BS 8110 and confirmed by testing. The lower ULS bending moment is for overall lengths up to 2240 mm, the higher figure for longer lengths.
- These values apply to sections at a distance greater than 350 mm from the face of the bearings i.e. they are unenhanced by proximity to the bearings.

The following Table gives the mass of the units, the total loads over and above the self weight of the units which may be applied as an approximate UDL on the clear span without visible cracking and the maximum deflections under those loads. They are based on the values in Column 4 of Table 1.

Dimensions are in mm, masses in kg and loads in kN.

**Mass & Loads - Table 2**

Unit Width	Material	Overall Length	1115	1330	1565	1790	2015	2240	2465	2690
90	Original	Mass	48	58	67	77	86	96	-	-
90	Riverbed	Mass	47	56	66	75	85	94	-	-
90	Lignastone	Mass	40	50	60	70	80	89	-	-
90	Sahara	Mass	40	50	60	70	80	89	-	-
<b>Total Load</b>			<b>7.1</b>	<b>7.1</b>	<b>6.5</b>	<b>5.5</b>	<b>4.9</b>	<b>4.3</b>	<b>-</b>	<b>-</b>
100	Original	Mass	54	65	76	87	98	108	-	-
100	Riverbed	Mass	53	64	74	85	95	106	-	-
100	Lignastone	Mass	49	59	69	79	89	99	-	-
100	Sahara	Mass	49	59	69	79	89	99	-	-
<b>Total Load</b>			<b>7.7</b>	<b>7.7</b>	<b>7.1</b>	<b>6.2</b>	<b>5.4</b>	<b>4.8</b>	<b>-</b>	<b>-</b>
140	Original	Mass	75	90	105	120	135	150	166	182
140	Riverbed	Mass	73	88	102	117	132	146	161	176
140	Lignastone	Mass	68	82	96	110	124	138	152	165
140	Sahara	Mass	68	82	96	110	124	138	152	165
<b>Total Load</b>			<b>11.0</b>	<b>11.0</b>	<b>10.1</b>	<b>8.6</b>	<b>7.6</b>	<b>6.7</b>	<b>6.0</b>	<b>5.6</b>

**Maximum Deflection: Less than 2mm for all materials and spans**

Notes:

Units of all lengths will carry a 45° triangle of dense masonry of the same thickness as the lintel without visible cracking. Moments and shears under other load configurations should be assessed by a structural engineer using the data in Table 1. The self weight effects of the lintels need not be added to those of the imposed loads when using the moment and shear values given in that Table. Loads up to 3.5 times the values given in Table 2 will be within the serviceability limit state and loads up to 5 times the values given in Table 2 will be within the ultimate limit state.

**General Physical Properties - Table 3**

Thermal Conductivity (W/mK)	Based on tabulated values from EN 1745 - Original Facing Masonry - Riverbed - Lignastone - Sahara	<b>at 3% m/c</b> 1.43 1.33 1.25 1.39	<b>at 5% m/c</b> 1.53 1.43 1.35 1.49
Water Vapour Diffusion	Based on tabulated values from EN 1745	5/15 <sup>a</sup>	
Water Absorption by Capillarity		All materials <100 (g/m <sup>2</sup> /S <sup>0.5</sup> )	
Fire Resistance (Hours)	Original, Riverbed, Lignastone Sahara	<b>90 &amp; 100mm wide</b> 0.5 1.0	<b>140mm wide</b> 1.0 1.5
Coating	All materials	Coating reference C1 unless otherwise ordered.	

Notes:

a) Units are frost resistant when built in accordance with PD 6697.

**Accreditations**

