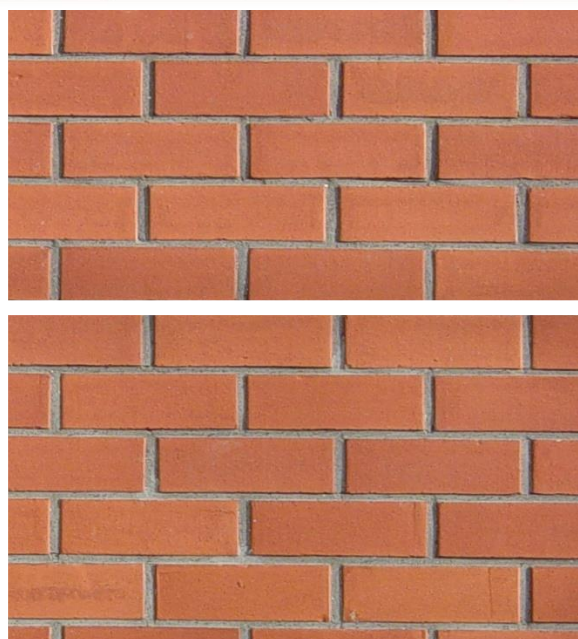


# ruliba clays



**PRODUCT GUIDE**  
Bricks and Blocks

In order to match with technological developments and to keep continuous progress in research and development, technical guides are subject to review.

Users shall ascertain that they are in possession of the latest edition.

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## About Clay Bricks and Blocks:

Clay Bricks and Blocks are the only man-made building materials that testify to their use since the early human civilization. With their attractive appearances and superior properties such as high compressive strength and durability, excellent fire and weather resistance, good thermal and sound insulation, bricks are widely used for building, civil engineering work, and landscape design.

## Ruliba Bricks and Blocks:

We have a variety of sizes for bricks and blocks and seen below;

	<b>WALL BLOCKS &amp; BRICKS</b>				
	<b>DIMENSIONS (cm)</b>	<b>Kg/UNIT</b>	<b>Pces/M<sup>2</sup></b>	<b>Breaking load</b>	<b>W.A</b>
	<b>L X W X H</b>				
	<b>PARTITIONING BLOCKS</b>				
	'15 40 X 15 X 20	4.5	12	> 4 N/mm <sup>2</sup>	< 14%
	<b>ORDINARY BLOCKS</b>				
	'9.5 40 X 17.5 X 9.5	6.9	23	> 4 N/mm <sup>2</sup>	< 14%
	<b>INTERLOCKING BLOCKS</b>				
	'15 30 X 15 X 11.5	4.5	26		
	<b>CORNER BLOCKS</b>				
	'15 30 X 15 X 11.5	4.5	8		
	<b>BRICKS</b>				
	'17.5 25 X 17.5 X 9.5	4.4	37	> 4 N/mm <sup>2</sup>	< 14%
	'12 25 X 12 X 6.3	2	105	> 4 N/mm <sup>2</sup>	< 14%
	'10 21 X 10 X 6.3	1.6	125	> 4 N/mm <sup>2</sup>	< 14%

## **Guidance on workmanship of brick work:**

In practice, brickwork is liable to suffer certain degree of defects due to the following human factors:-

### **1. Incorrect selection of mortar:**

As a general rule for brickwork, do not use mortar with strength higher than necessary. Investigations show that compressive strength is not a crucial factor in the selection of correct mortar. Instead, the workability, water retentivity and bonding are the more important factors to consider.

### **2. Incorrect cement to water ratio of mortar mix:**

Workers at job site tend to mix mortar with a higher cement to water ratio in order to ease work. This may have an adverse effect on the final strength and drying shrinkage of mortar. The use of right cement water ratio required for optimizing the degree of cement hydration will thus enhance the strength and impermeability of mortar.

### **3. Incorrect batching and mixing of mortar:**

Too often mortar ingredients are not batched properly and not mixed uniformly at job site. This will eventually affect the workability and quality of mortar.

### **4. Incorrect jointing procedure:**

The most commonly seen defects of brickwork arise from incomplete or excessive thick filling of joints. Thick bed joint of 16-19 mm may reduce the strength of brickwork by 30% as compared to the normal 10 mm thickness.

### **5. Disturbance of bricks and blocks after laying:**

Any disturbance of bricks after laying for a while will result in breaking the bond between bricks and mortar and give rise to possible adverse effect on the strength of brickwork.

### **6. Failure to protect work from weather:**

Newly completed brickwork can be adversely affected by exposure to unfavorable weather conditions such as curing under hot sun and damage by rain. Polyurethane sheets can serve as a cheap mean for whether protection.

## **Guidance on materials:**

### **Cement**

#### *Portland Cement*

There are five different types of Portland cement :-

- Type A - ordinary Portland cement
- Type B - fast setting Portland cement
- Type C - low heat Portland cement
- Type D - sulphate resistant Portland cement
- White Portland cement

The strength and durability of mortar depend to a great extent on the type and quality of cement used. The choice of cement is based on the usage requirements and conditions of use. Type A cement is adequate for normal usage. In cases where brickwork is exposed to severe contaminated conditions or under seawater where brickwork is liable to salt attack, Type D sulphate resistant Portland cement is preferred. White Portland cement is only used for making white mortar.

#### *Masonry Cement*

Masonry cement is premixed combinations of Portland cement and other fillings and plasticizing compounds. They are intended to replaced the cement and lime in the conventional mortar. The composition of masonry cement varies with the manufacturer.

### **Lime**

The function of lime is to give good workability and reduce cracks when used correctly. Only hydrated lime is used in masonry mortar.

### **Sand**

The sand used for mortar must be clean, free from salt and organic contents. Most natural sand contains a small quantity of clay, which will improve the mortar workability. However, excessive clay content causes high drying shrinkage, low compressive strength and poor bandage in brickwork. Practical limit of clay content in sand should not exceed 10%

The grain size of sand has great effects on the properties of mortar. BS 1200 prescribes the limits of particle size distribution. In practice, a 50-50 mix of coarse sand (mean value of particle size at 600 microns) and fine sand (mean value of particle size at 300 microns) gives satisfactory result. Owing to the variation of natural sand and its property, local experience and experiment to optimize the property of mortar is necessary.

### **Admixtures**

Admixtures are used in mortar to achieve the following purposes :-

- To improve workability
- To modify setting time
- To improve water retentivity
- To improve water-proofing property

There are many commercial cement admixtures that claim to achieve the above improvements. These admixtures contain synthesized polymers that produce amazing improvement in the properties of cement mortar when added in a small quantity. However, these admixtures should be used with care and to avoid negative results due to overdosing and overmixing of mortar.

### Guidance on mortar joints for Blocks and brick work:

The effect of mortar joints on the appearance of brickwork has always been neglected or overlooked. Although mortar joints appear on brickwork as narrow lines, they actually take up a significantly large proportion (about 15% to 25%) of the total wall surface, depending on the bonding pattern. This explains the surprising effect of mortar on the brickwork finished look. A dark mortar tends to make the bricks look darker and richer in color whereas a lighter mortar tends to make bricks to appear in lighter tone.

Mortar joints should be finished with a consistently shaped profile to enhance the characteristic appearance of brickwork. Four common types of joint are illustrated below:-



Flushed Joint

Flushed joint is used when a smooth finish is desired



Raked Joint

The mortar is raked off by about 8mm back from the brick face. This type of joint is used when a rustic look is desired, emphasizing the individual brick



Rolled Joint

A commonly used joint formed by a round bar mortar to give a smooth finish and create a half-circle indent



Weather Struck Joint

A joint formed by cutting mortar at a single angle to brick face with a trowel. Strucjoint is generally used against weathering

We recommend mortar joints of **Maximum** 12mm for blocks and 10mm for bricks

### Guidance on damp proof coursing:

It is highly recommended to put a Damp proof course for all brick work

The main Importance is;

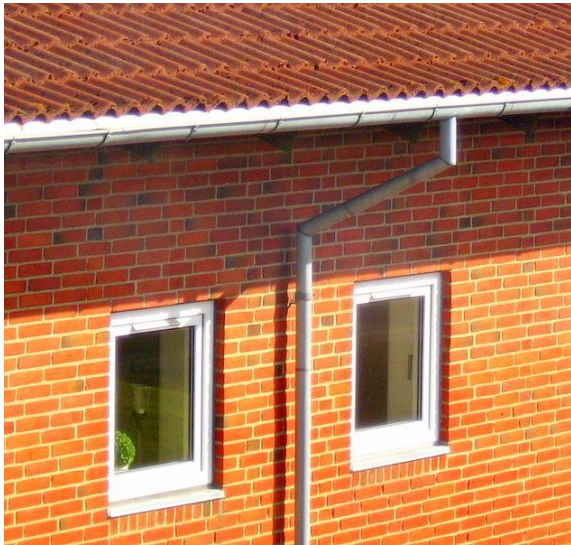
- Protects wall from underground capillarity water

- Protects free standing walls from infiltration by water from above.

## Guidance on Overhang and rain gutters

Over hang means the portion of roof that extends beyond the log wall. A rain gutter is a narrow channel, or trough, forming the component of a roof system which collects and diverts rainwater shed by the roof

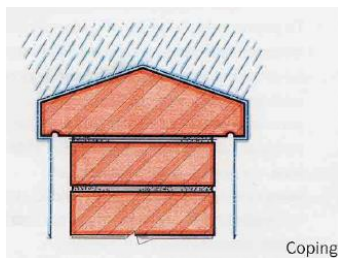
The main Importance is to throw rain water off the walls.



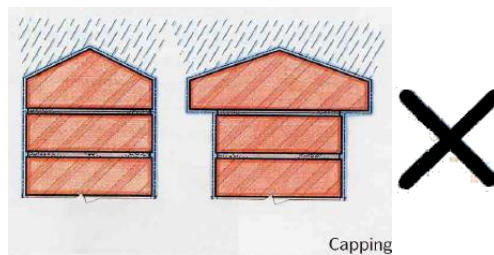
## Guidance on coping the walls

Coping means a unit or assemblage placed at the head of a wall and designed to shed rain water from the top of the wall clear of all exposed surfaces of the walling beneath.

The main Importance is to throw rain water off the walls.



**Correct**



**Wrong**