

## SITE PRACTICE AND TROUBLESHOOTING

# STAINING OF BLUE BRICKWORK

### (PEACOCKING & PICTURE FRAMING)

#### WHAT IS PEACOCKING OR PICTURE FRAMING?

Blue bricks in service can often exhibit an oily coloured type of stain, often referred to as 'Peacocking' because the colours are similar to those found in the feathers of the male Peacock. They are in fact similar to the swirling colours of oil on water. Often they take the shape of a tide mark where mortar has come into contact with the brick.

#### CAUSE & EFFECT

It has always been a normal feature of blue clay brickwork due to the iridescent effect of the brick's colour and is caused by light diffraction through a very thin surface layer of colloidal silica or cementitious material.

#### Staining is usually the result of:

- Saturation of brickwork prior to the mortar curing or excessively wet mortar. This gives a 'picture frame' effect, with the dark staining more apparent around the edges of the brick. Saturation may also release free lime present in the mortar resulting in lime leeching from the joints (far picture). Rain can wash fresh mortar over the entire face of the brickwork if adequate protection has not been provided.
- The direction of water run-off from cementitious areas, i.e. floor slabs.
- A fine deposit of cement or lime transmitted to fine crazing lines by the moisture in the mortar at the time of laying. All are superficial and are not detrimental to the performance of the brick. Changing weather conditions can highlight some of the effects as can the initial drying out of brickwork.

#### PREVENTION

To minimise the effects, good site practice should be adhered to following the recommendations in PD 6697: recommendations for the design of masonry structures, and BS 8000: Part 3: workmanship on building sites.

Keep stacks of bricks and newly laid brickwork as clean and dry as possible. Ensure laying or pointing mortar is not excessively wet. A designation (i) or (ii) mix is recommended to stiffen the mixture. The



Iridescent appearance caused by light diffraction through fine cementitious material that has leached from mortar

first 3 to 5 days after laying (dependent on season), brickwork is most vulnerable to the elements as mortar is still undergoing the hardening process. Newly erected masonry should be covered by waterproof sheeting to protect fresh mortar and open cavities to stop masonry becoming saturated. Once the structure is watertight, i.e. roof and windows in place, the building can commence the drying process.

#### REMEDIATION

Rain can spread the uncured mortar completely over the brick face leaving localised dark staining however saturation may also release free lime from the mortar which builds up into white calcified deposits. Once the stain has been allowed to appear it is extremely difficult to remove. Cleaning the brickwork down at the end of the job, after mortar has cured sufficiently, with a proprietary acid based brick cleaner may lessen the effect.

If the stain has accumulated to the extent where it takes the form of white calcified material, a hydrochloric based cleaner applied as soon as possible (but after the structure is watertight and sufficient mortar curing time has elapsed), will assist in its removal. Dependant on seasonal conditions acidic based cleaning ought not be carried out until 2-4 weeks after construction to allow mortar joints to cure sufficiently. Professional advice should be sought from brickwork remediation contractors.

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