

# St. Astier Mortar Tests : 24-Month Results September 2000

Enclosed the final results as follows:

Table 1 : Test on NHL/Sand mixes (1:2)

Table 2 : Test on NHL/Sand mixes (1:2.5)

Table 3 : Test on NHL/Sand mixes (1:3)

Table B-1 : Tests on NHL/Putty /Sand blends (NHL 5 blended with Putty @ 10% 30% 50%)

Table B-2 : Tests on NHL/Putty /Sand blends (NHL 3.5 blended with Putty @ 10% 30% 50%)

Table C-1 : Test on Cement/lime/sand mixes ( 1:1:6 1:2:9 )

\* The proposed EU norms are conducted on mortars prepared with a binder/sand ratio of approx. 1:1.3. and Standard EU laboratory sand (ISO 679).

\* The tests below reflect the performance of mortars made with the same sand but with volumetric mixes that are commonly used.

\* Proctors air cured have been stored at constant 15 degrees C and 95% humidity.

\* Water addition was made to obtain the same workability on all mortars.

**NOTES:** Compressive strength in NHL mortars is achieved gradually, allowing for movement. This is due to the lack of cement. In cementitious mixes the hardening is much faster and mostly complete within 28 days.

Elasticity, which is so important to achieve joint free construction, is by far better in NHL mortars than cementitious mixes.

Shrinkage, capillarity and vapour exchange (permeability to air) also show better values than cementitious mixes.

The test on NHL/Putty blends shows the significant performance alteration that takes place. Although this does not signify that these blends cannot be used, we think that the specifier should be aware of the related performance.

The initial set up of these test was done in consultation with Mrs. J. M. Teutonico of English Heritage, Mrs. P. Gibbons of The Scottish Lime Centre, Prof John Ashurst, Douglas Johnston and Arch. Stafford Holmes to whom we are grateful for their co-operation and suggestions.