

2 March 2010

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524A81.00

Dear Colin

Compression Testing of 50 mm AAC Panel

As requested, Opus Central Laboratories carried out compressive strength testing on the four samples of AAC (autoclaved aerated concrete) delivered on 1 February 2010. In addition, a bulk density determination was made on the 'LOXO' sample.

The AAC panels supplied are itemised in the table below:

AAC Brand	Abbreviated Label
Eastland	'E'
Golden Homes 40 series	'GH40'
Golden Homes 20 series	'GH20'
LOXO	'L'

Methodology

The testing was carried out with reference to the supplied standard ASTM C1386 'Standard Specification for Precast Autoclaved Aerated Concrete (AAC) Wall Construction Units'. Compressive strength was determined in accordance with Section 8 of this document and bulk density determined in accordance with Section 9.

Variation to Requested Methodology

ASTM C1386 specifies that testing should be carried out on cube specimens of 100 mm edge length. The supplied specimens had been cut from mesh-reinforced AAC panels approximately 50 mm thick, yielding dimensions of 100x100x50 mm.

Due to lateral stresses imposed by end restraint under uniaxial loading, the geometry of a test specimen greatly influences its measured compressive strength. To maximise compatibility of the results with the performance criteria given in ASTM C1386, the supplied specimens were re-cut to give cubes with a 50 mm edge length; this also allowed reinforcing mesh to be completely avoided in the test pieces.

After cutting with a water-cooled saw, the test specimens were allowed to air-dry to equilibrium mass in an environment maintained at 23°C and 50% R.H.

No additional sample was available for the bulk density testing on the 'LOXO' product. Accordingly this was determined on off-cuts from preparation of the compression samples, plus one additional prism supplied for a shrinkage test that did not proceed. The other

shrinkage prisms were not suitable for use due to the presence of a longitudinal strand of reinforcement.

Results

Test results are given in the following tables:

Specimen	Compressive Strength (MPa)	Mean Strength
LOXO		
L-1	4.0	4.2 MPa
L-2	4.3	
L-3	4.2	
L-4	4.2	
L-5	4.3	
Golden Homes 20 Series		
GH20-1	3.7	3.7 MPa
GH20-2	3.7	
GH20-3	3.7	
GH20-4	3.6	
GH20-5	3.6	
Golden Homes 40 Series		
GH40-1	3.9	3.7 MPa
GH40-2	3.5	
GH40-3	3.5	
GH40-4	3.8	
GH40-5	3.7	
Eastland		
E-1	3.8	3.5 MPa
E-2	3.6	
E-3	3.2	
E-4	3.3	
E-5	3.4	

Specimen	Moisture Content (%)	Dry Bulk Density (kg/m ³)
LOXO		
L-a	3.56	486
L-b	3.58	487
L-c	3.54	486
L-d ¹	3.64	489
Average	3.6 %	487 kg/m ³

² Shrinkage test specimen

Thank you for the opportunity to carry out this work. Please don't hesitate to get in touch if anything in this report requires clarification, or if Opus can be of further assistance in the future.

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