SPECTRO®
SSA Labs Pvt Ltd

SPECTRO®
Analytical Labs Limited

FIRE RESISTANCE TEST

FOR

AUTOCLAVED AERATED CONCRETE BLOCKS

AS PER ASTM E119-16

Study Conducted For:

M/s. Magicrete Building Solutions Pvt. Ltd.,
Block No.188 B-190, 192/1,
Post-Arak, Tal-Jalapore,
396475
Navsari.

INDEX

A. PRODUCT DETAILS:

AAC (Autoclaved Aerated Concrete) Blocks
Dimensions 625 x 240 x 150 mm

B. TEST METHOD & SPECIFICATION:

Evaluation of Fire Resistance Test of Wall Constructed of Autoclaved Aerated Concrete Blocks for 4 Hours Rating as per ASTM E119 a.

C. CRITERIA OF ACCEPTANCE:

1. Insulation:

a. The average temperature of the unexposed face of the specimen shall not increase above the initial temperature by more than 139^{o}C.

2: Integrity:

a. The presence and formation in the test specimen of cracks, holes or other opening through which the flames or hot gases can pass as to cause initial integrity failure.

b. Initial integrity failure shall deemed to have occurred when the cotton pad is ignited or when sustained flaming, having duration of 10 sec appears on the unexposed face of the specimen takes place.

c. Ultimate integrity shall be deemed to have occurred when collapse of the specimen takes place.

D. TEST SUMMARY:

1. Furnace Details:

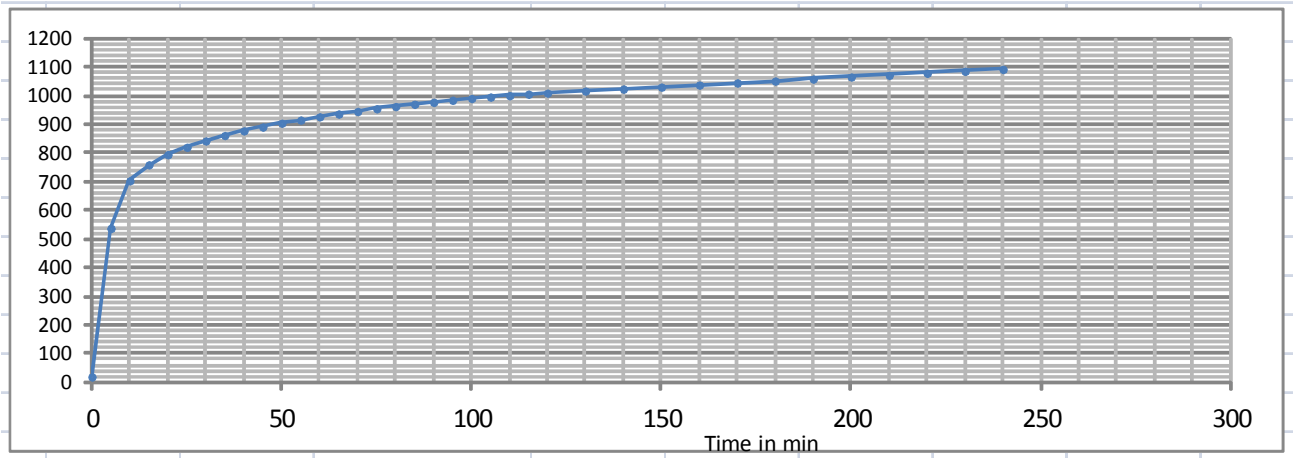
a. The Fire Resistance Test was carried out as per ASTM E 119 -00 a.

b. Source of fuel used is PNG gas.

c. Size of Furnace used for performing test is 3.0 x 3.0 x 1.25 m, with 04 nos. of burners attached as 02 nos. at left and 02 nos. at the right side wall of the furnace.

d. 09 nos. of Thermocouples made of Chromel – Alumel were mounted on the rear side of the furnace wall at the locations specified below. Length of thermocouple was kept 155 mm away from the face of the wall.

e. The temperature of the furnace was controlled to vary with time as closely as possible in accordance:



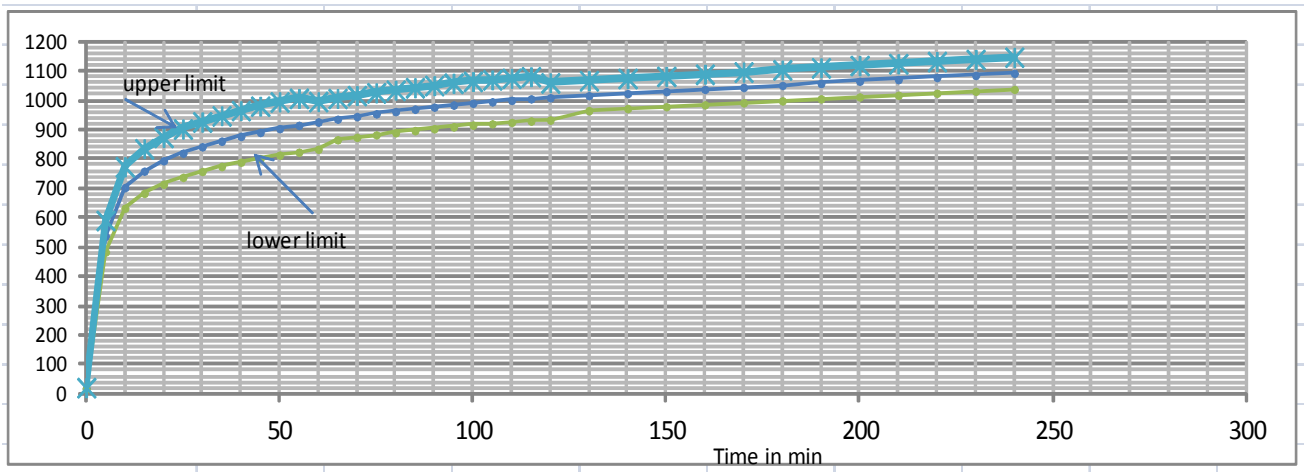
Job /Sample ID.160420098-1-2

Required Graph of Time Vs Temp	
Time in min	Req Temp °C
0	20
5	538.00
10	704.00
15	760.00
20	795.00
25	821.00
30	843.00
35	862.00
40	878.00
45	892.00
50	905.00
55	916.00
60	927.00
65	937.00
70	946.00
75	955.00
80	963.00
85	971.00
90	978.00
95	985.00
100	991.00
105	996.00
110	1001.00
115	1006.00
120	1010.00
130	1017.00
140	1024.00
150	1031.00
160	1038.00
170	1045.00
180	1052.00
190	1059.00
200	1066.00
210	1072.00
220	1079.00
230	1086.00
240	1093.00

Graph -2: Acceptable Variation corresponding to required value

Permissible maximum and minimum variations:

I. For first 60 minute of test ± 10%
II. For first 120 minute of test ± 7.5%
III. Above 120 minute of test ± 5%



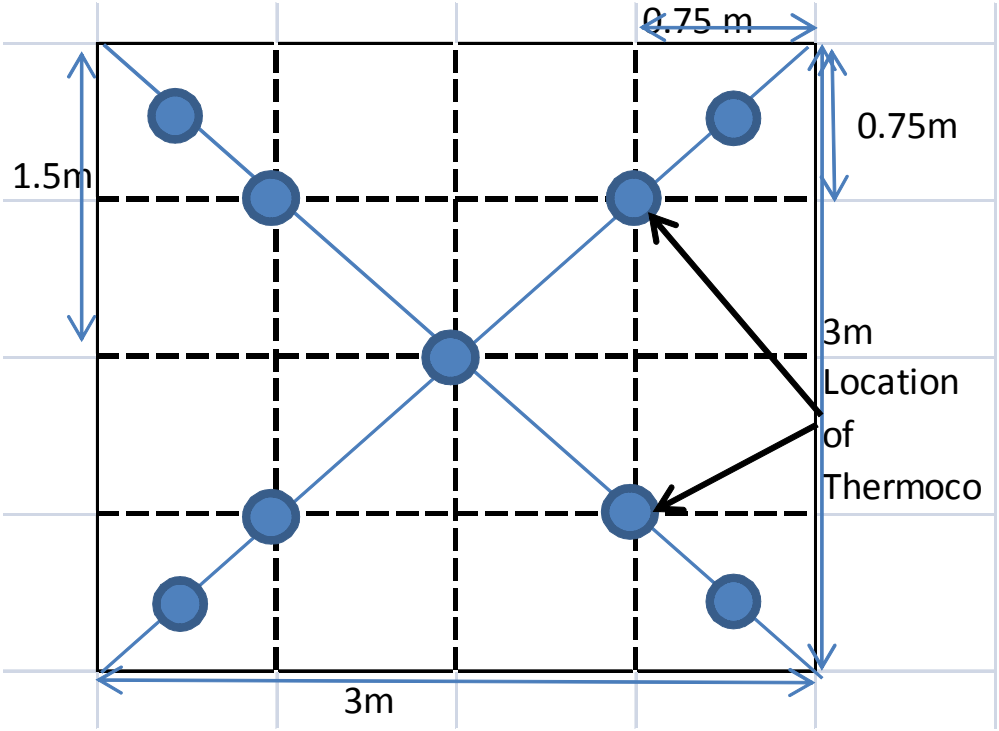
2. Wall Details:

a. Specimens used for construction of wall were 625x240x150 mm size AAC blocks.

b. Wall was constructed over a boggie with proper alignment.

c. Masonry work was done as per the guidelines of IS:6041.

d. 09 nos. of K type thermocouple were mounted on unexposed side of the wall at the location specified below.

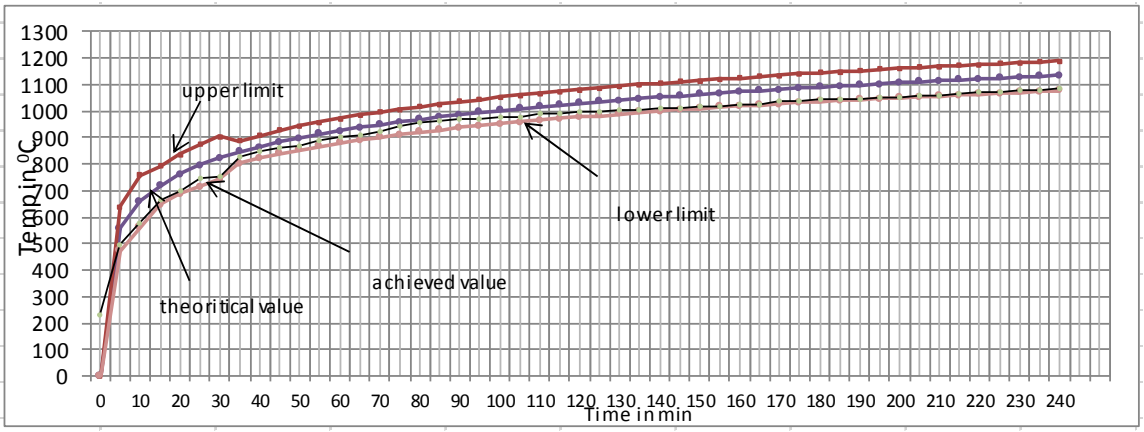


Above figure shows the locations of the thermocouple of furnace & unexposed surface of the wall.

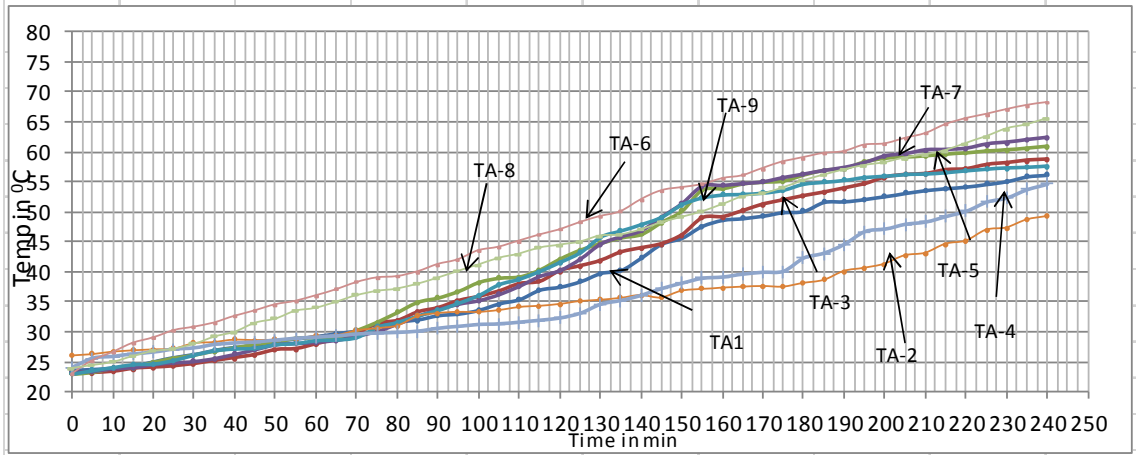
E. RESULTS AND DISCUSSIONS:

1. Results of Insulation Test:

a. The below figure compares the requirements of the standard Vs achieved temperature Plot. The achieved value is well within the permissible limit.



b. The below figure gives the plot of temperature of nine thermocouples mounted on the un-exposed side of the wall. The maximum temperature reached by the thermocouple no.6 was 68.3°C



The maximum average temperature observed during the entire test period of 240 minutes was 59.3°C which is below (139+23.7=162.7)°C.

2. Results of Integrity Test:

No flaming was observed during the entire test period of 240 minutes.

F. PHOTOGRAPHS:

	
PREPRATION OF SAMPLE FOR TESTING	**LOCATION OF FURNANCE THERMOCOUPLE**
	
FIXING OF THERMOCOUPLE AT UNEXPOSED SURFACE	**MONITRING OF DATA DURING TEST**

G. CONCLUSION:

The AAC Block Wall was able to withstand 4 Hours Rating as per ASTM – E 119 during the Fire Resistance Test.

H. TESTING LOCATION:

The Test was conducted at our Laboratory:
M/s. Spectro Analytical Labs Limited,
Greater Noida.

I. DATE OF REPORTING:

06.05.2016

Date of Start : 28.04.2016
Date of Completion : 05.05.2016

SPECTRO SSA LABS PVT. LTD. AUTHORISED SIGNATORY THANE

(Authorized Signatory)

**********END OF REPORT**********