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DISTART
DEPARTMENT OF STRUCTURE, TRANSPORT, WATER,
SURVEY AND LANDSCAPE ENGINEERING
EXPERIMENTAL LABORATORY FOR MATERIAL STRENGTH

Bologna, 10 April 2002

CERTIFICATE No. 14/02/1

Registration No. 242
of 12 April 2002

To the Company:
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ITALY

CERTIFICATE

of diagonal compression test on 9 walls built with solid tile bricks, requested through application on 1 October 2001.

Brick walls were built during various days of the month of October 2001 at the Material Strength Laboratory by Client personnel. Brick walls were built with the nominal dimensions and brick structure shown in Figure 1 below.

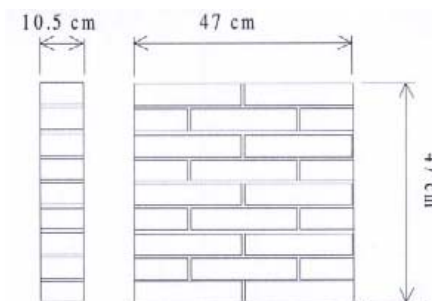


Figure 1

Except for 2 walls referred to as P1 and P2 hereafter, all walls have been plastered with mortar called “stabilized inorganic matrix Ruredil X Mesh M25”, and a “carbon fiber grid Ruredil X Mesh C10”, in accordance with the following configurations:

- a) for 2 walls, referred to as P3 and P4 hereafter, the coating was applied on one wall face “with grid placed at 0°/90°”;
- b) for 2 walls, referred to as P5 and P6 hereafter, the coating was applied on one wall face with “two grids placed at 0°/90° and +45°/-45°, respectively”;
- c) finally, for 3 walls, referred to as P7, P8 and P9 hereafter, the coating of item b) above was applied on both wall faces.

With the mortar used for plastering, prismatic samples were prepared, whose nominal dimensions were 4x4x16 cm, to determine flexure strength R_f and compression strength R_c values, in compliance with the procedures indicated by the UNI EN 196/1 standard. Experimental values have been collected in tables 1a and 1b.

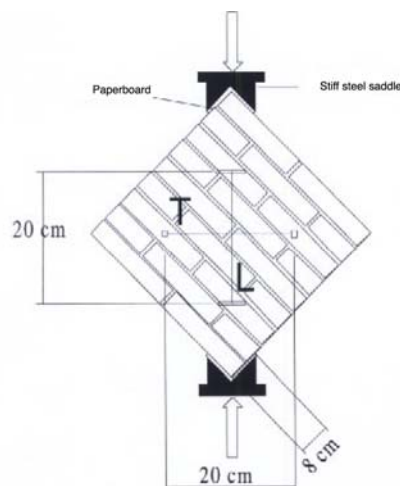
Table 1a

Curing age	Sample 1 R_f MPa	Sample 2 R_f MPa	Sample 3 R_f MPa	Average R_f MPa
15	7.81	6.67	6.78	7.09
30	7.54	7.56	7.45	7.52

Table 1b

Curing age	Sample 1		Sample 2		Sample 3		Average R_c MPa
	R_c MPa	R_c MPa	R_c MPa	R_c MPa	R_c MPa	R_c MPa	
15	31.87	32.73	35.86	36.41	33.65	33.59	34.02
30	35.06	37.94	36.96	37.39	39.72	40.27	37.89

Walls underwent diagonal compression tests, in accordance with the static diagram shown in Figure 2.



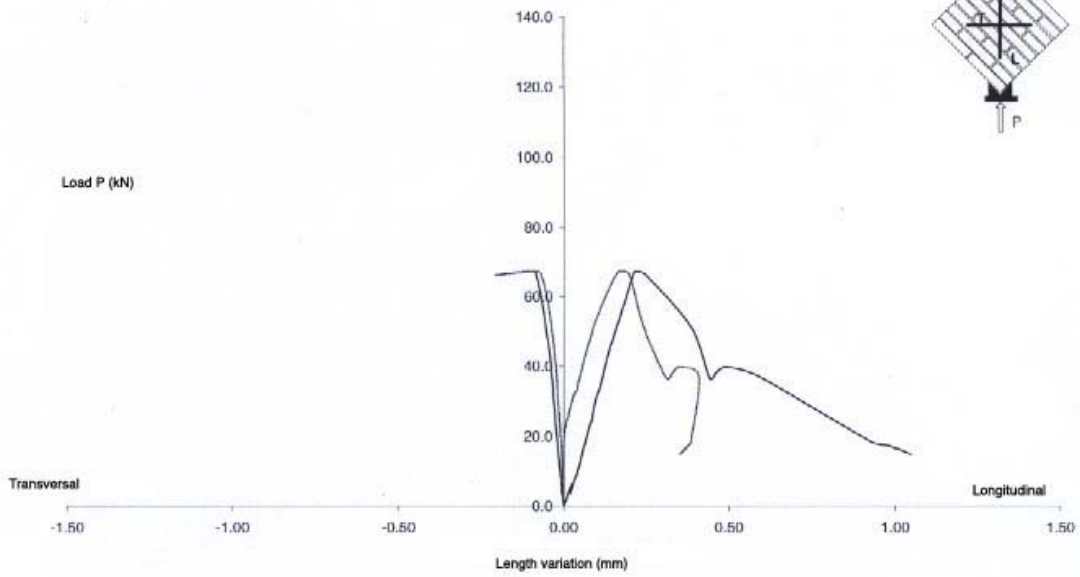
The wall structure response was measured through measuring, by means of LVDT transducers, length variation of two base platforms, whose initial length was 20 cm, placed in horizontal direction (T) and vertical direction (L), respectively. These measurements have been performed on both faces of each wall.

Figures from 3 to 11 show the experimental diagrams “Load P – Length Variation” obtained. Table 2 shows the maximum load value reached by every sample.

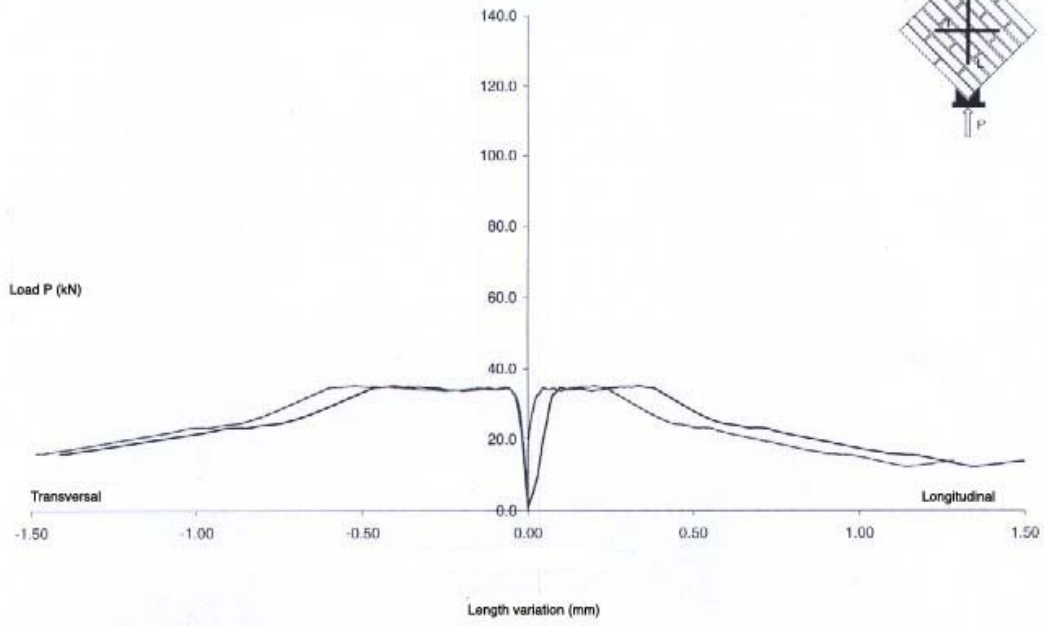
Table 2

Sample	P KN
P1	67
P2	35
P3	47
P4	62
P5	100
P6	88
P7	131
P8	133
P9	120

Diagonal compression test
WALL P1



Diagonal compression test
WALL P2



6

Diagonal compression test
Wall P3

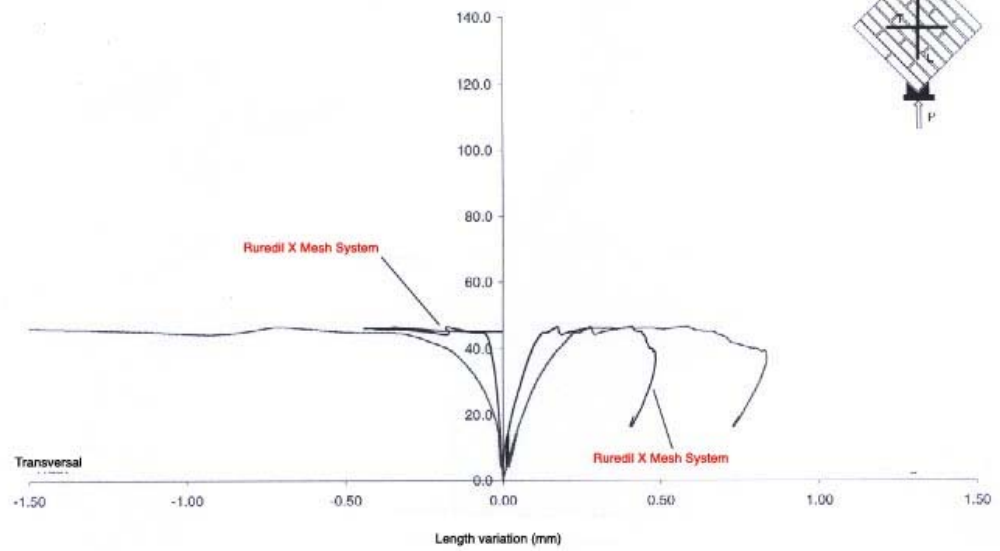


Fig. 5

Diagonal Compression test
Wall P4

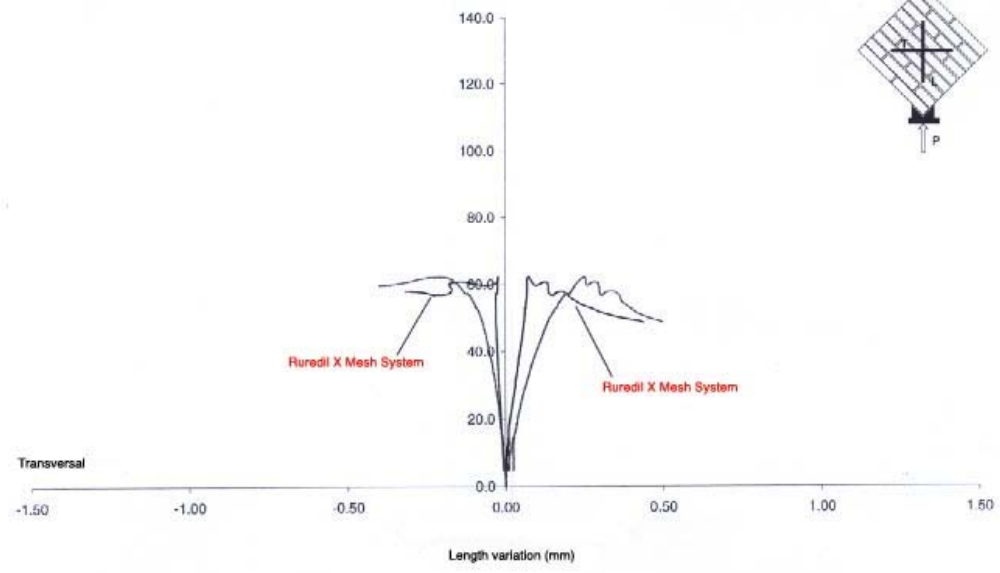
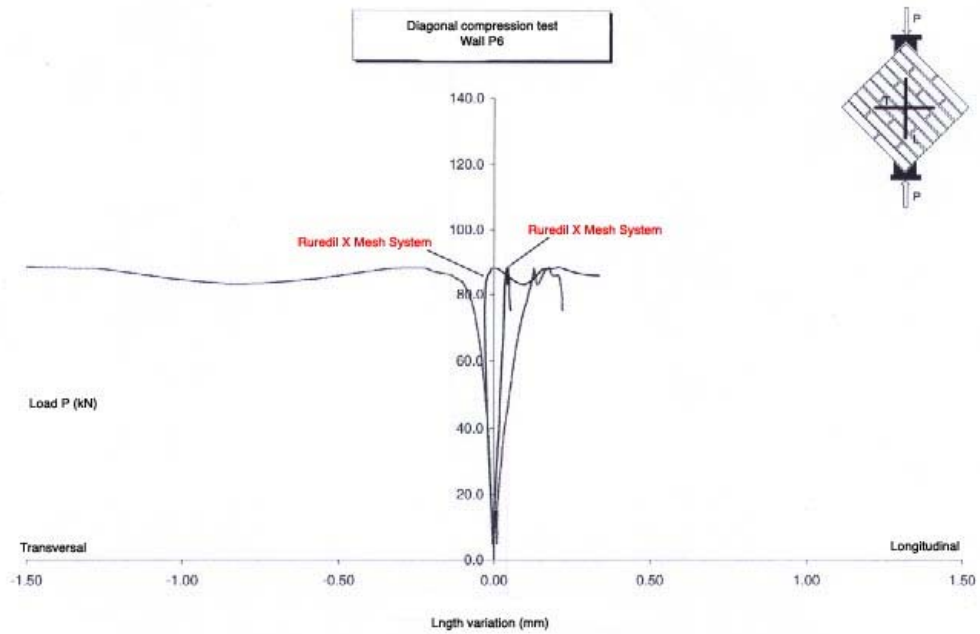
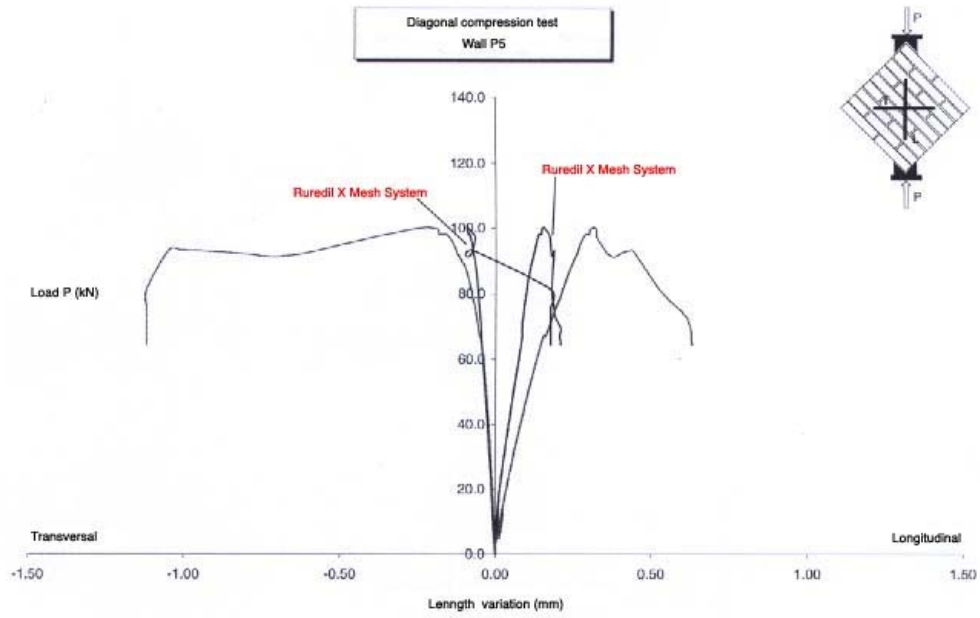


Fig. 6

2



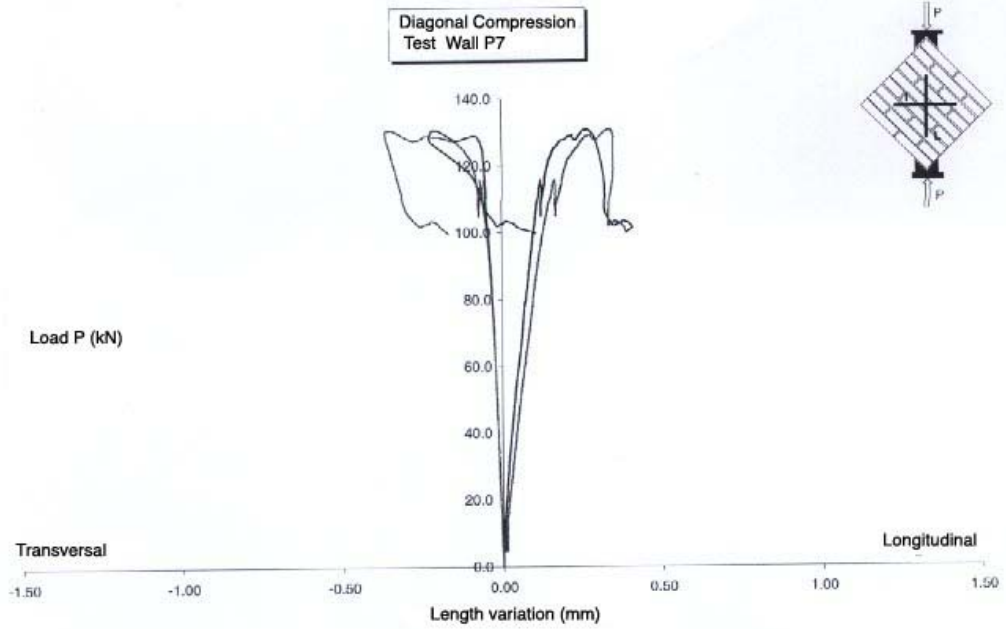


Fig. 9

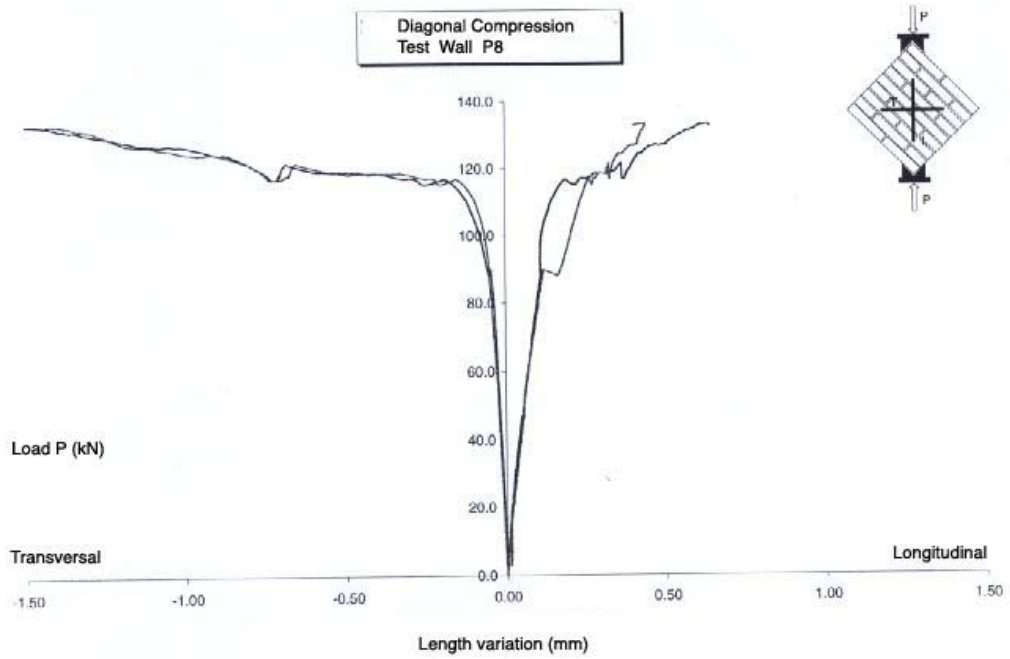


Fig. 10

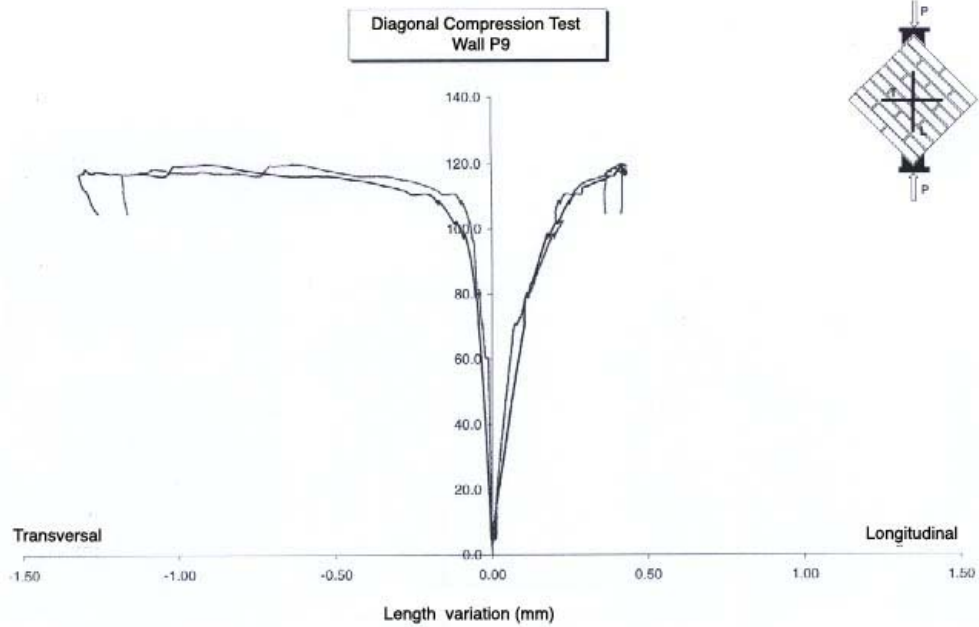


Fig. 11

The entire experimental program described above was implemented in accordance with the procedures indicated by the Client. Experimental sessions were attended by Client personnel.

The Experimenter
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