APPLICATION OF NEG ARG FIBRE

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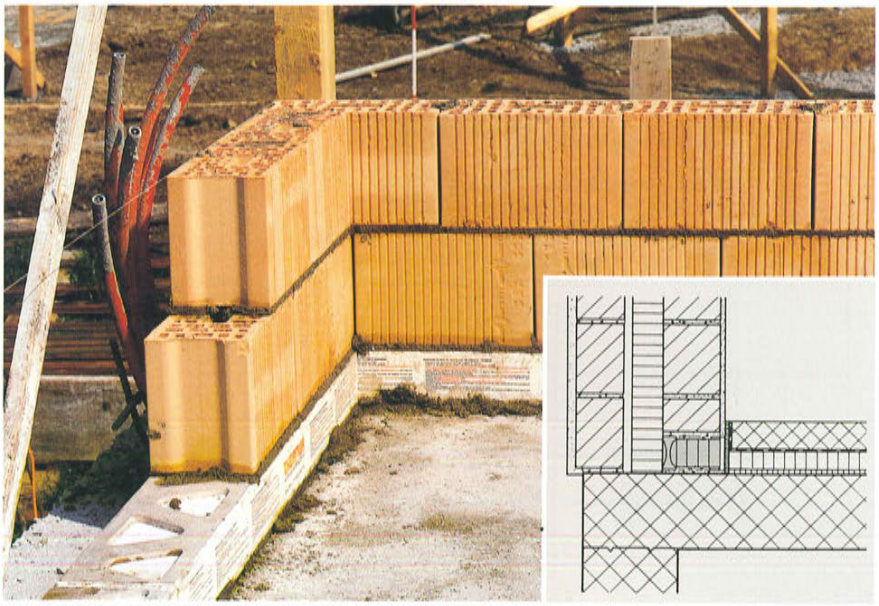
Nippon Electric Glass

NEG ARG Fibre, manufactured by Nippon Electric Glass Co., Ltd., is used throughout the world as a reinforcement for cement composites, including asbestos replacement products.

THERMUR: A load bearing and insulating building component

THERMUR



Standard GRC product: load bearing and insulating

THERMUR, manufactured by StahlTon Corporation, is a building component for brickwall. Its function is the prevention of a thermal bridge because of its load bearing and insulating capacity.

Product Tests for THERMUR in Germany

In Switzerland THERMUR is already used as a standard solution in the field of brickwall. Its introduction in Germany requires a license issued by the Institute of Civil Engineering in Berlin. Such a license is indispensable for load bearing building components. The license is granted if the product passes the necessary tests. The test program is dependent on the product and the material and is prepared by the Institute of Civil Engineering. Within the program a combustion test was required for THERMUR, which is described in the following.

Combustion Tests

The combustion tests for THERMUR were carried out at the Braunschweig Institute of Technology.
THERMUR had to be tested in realistic conditions. Therefore a brickwall to be tested consisted of a THERMUR element at its base and a plasterboard on one side. The wall was placed in the center of the furnace dividing it into two rooms, thus simulating interior and exterior climate.
Since the brickwall of a building carries the load of floor slabs, walls, roof and live load, the combustion test had to be carried out under the maximum admissible load of the brickwall. The test load was applied through a 100 Mp pressure equipment.
The test consisted of a 90 minute exposure to fire under maximum load (1.6 N/mm^2 i.e. 280 kN/m' according to DIN 1053 for brick strength class 12 and mortar group IIa). The temperature in the furnace was adjusted according to DIN 4102 as shown in Figure 4. The test is considered successful if the wall does not fail. To avoid failure of the brick before failure of THERMUR, the wall was built with bricks of strength class 20.

Figure 1 **The cross-section of the two brickwalls (t=175mm and t=115mm) with THERMUR to be tested**

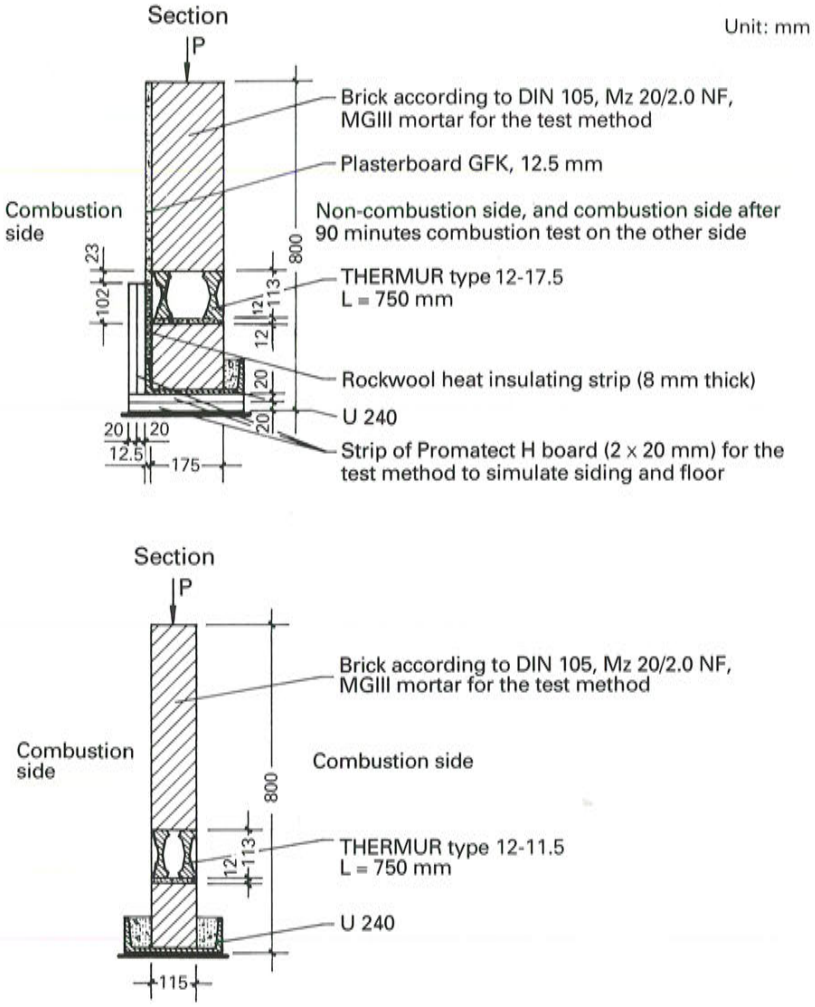


Figure 2 **Cross-section of the furnace with built-in testwall**

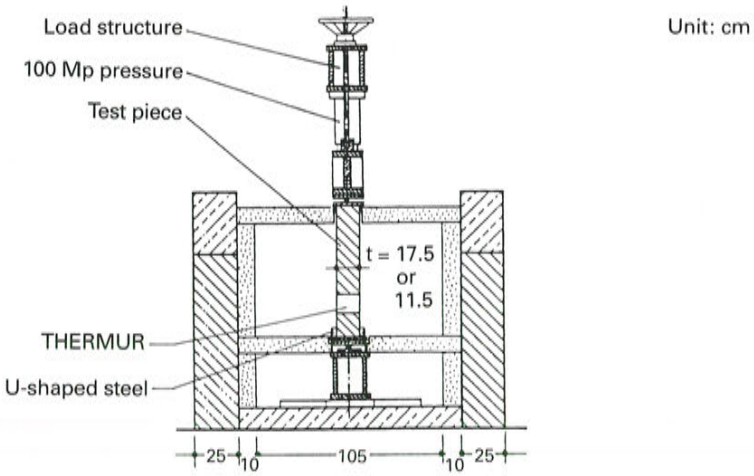


Figure 3 **Longitudinal section of the furnace with built-in testwall**

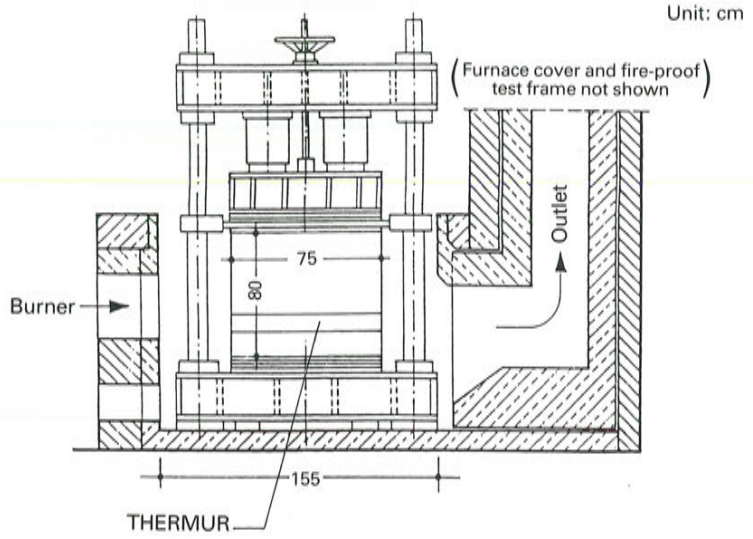
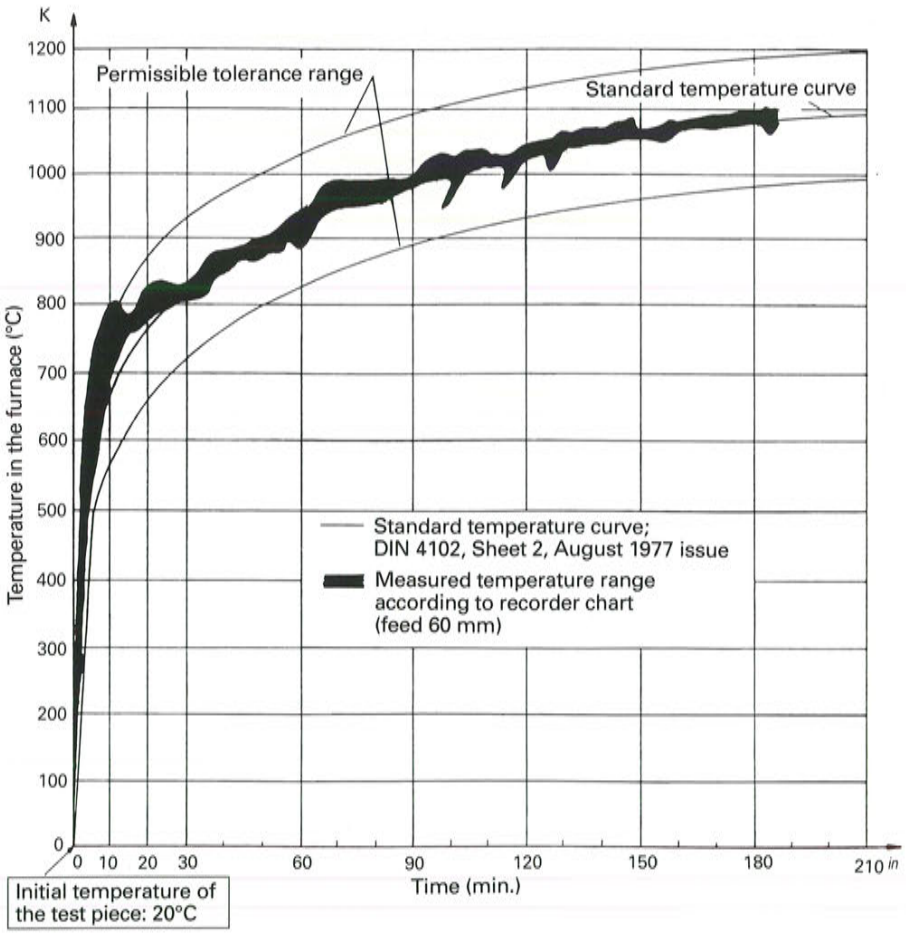


Figure 4 **Temperature curve according to DIN 4102 for combustion tests**



Test Result

Testwall t=175mm:

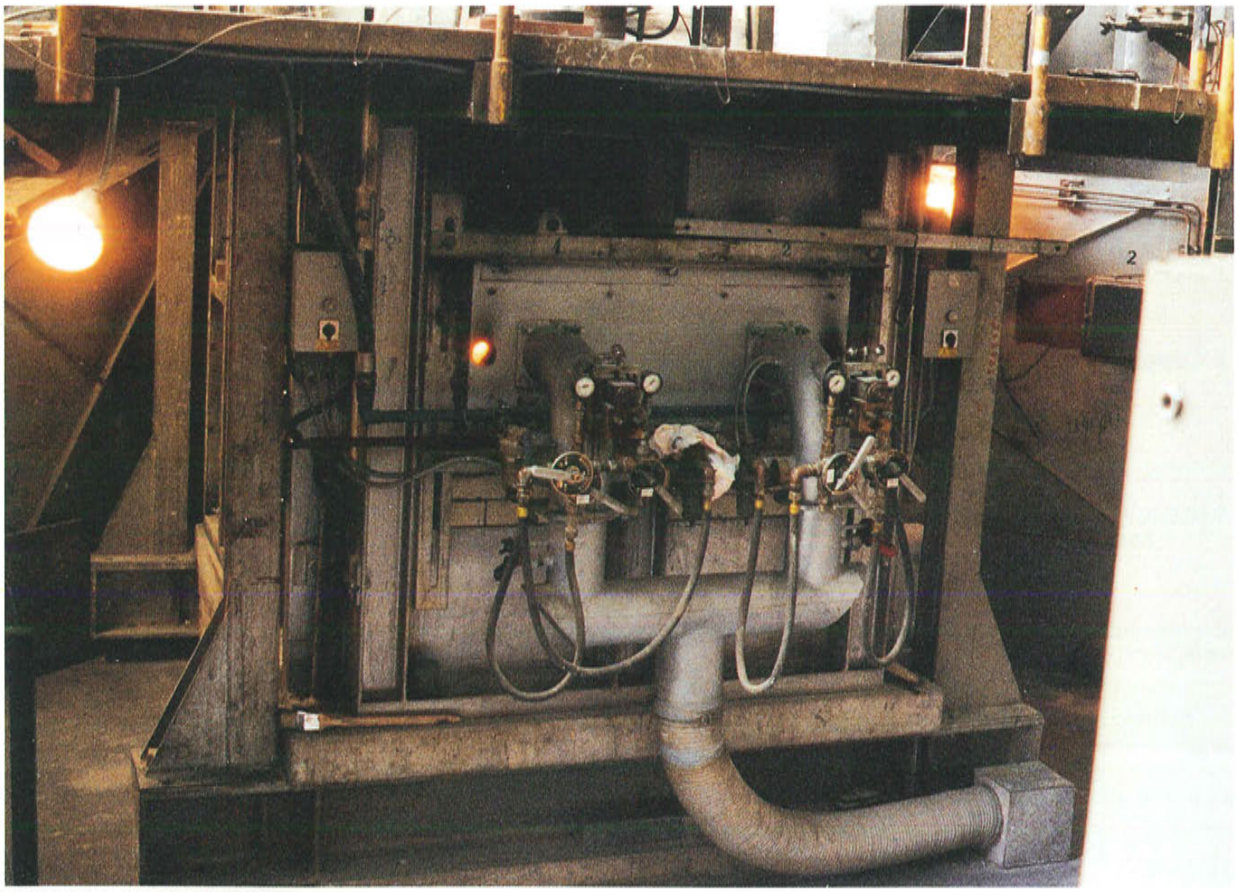
After 90 minutes of test, where the simulated inside (of a building) was exposed to fire, the THERMUR element did not even show cracking. The wall was exposed to fire from both sides for another 90 minutes reaching approx. 1100°C. The resting load bearing capacity of the wall was 6.5 times the admissible load.

Testwall t=115mm:

This wall without plasterboard was immediately exposed to fire from both sides, showing equally no damage at all after 90 minutes. After the test the load was raised until rupture of the wall at a level of 4 times the admissible load.

These tests were an impressive proof of the excellent performance of THERMUR in case of fire. The quality of THERMUR in other aspects has been proven by previous tests and by the success on the Swiss market.

(P. Curiger, StahlTon AG)



The furnace used for the test.

Testwall with THERMUR after 180 minutes of fire exposure.

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