TEST CERTIFICATE NO. 730.348

Report about the soundproofing of one sample sent to the Acoustics Laboratory, Construction Physics Department of the Material Research and Experiment Institute (IDIEM) at the University of Chile by Mr. Manuel Dominguez representing the Firm Monolite Chile Ltd, Ojos del Salado no. 0811, telephone 60335561, Santiago.

1. Specimen characteristics

The specimen core consists of a three-dimensional reinforcement made up of two electrowelded steel wire meshes, diameter 2.5 mm., spaced 110 mm apart and joined one another by connectors of the same material having a diameter of 3 mm. The reinforcement contains, for its whole extension, a foam polystyrene undulated plate, 90 mm thick, whose average apparent density is of 10 kg/m^3. This structure is plastered on both faces with a cement/sand based mortar, 1:3.5 ratio, 40 mm thick. As a finishing, the element has a 5 mm thick gypsum plastering.

For the test, a sample – 1.53 mt. high, 0.43 mt. wide and 0.18 mt. deep – has been prepared. The sample weighed 136 kg.

2. Testing

2.1 Soundproofing

The test lies in placing the specimen in the opening of a wall which divides two soundproofed enclosures.

In one of these, white noise is emitted at a sound level above 100 dB, while in the other one the transmitted or residual level is measured.

By a precision decibelmeter the sound level transmitted to the other enclosure is measured, prior of and after the assembling of the panel.. The difference between both the sound levels represents the gross soundproofing of the specimen examined.

The gross soundproofing obtained has been of 45 dB (A).

2.2 Determination of the “Sound Transmission Class” according to the ASTM E 413-73 regulation.

This classification aims at supplying only one evaluation figure representing the soundproofing of partition elements between rooms used in building. In order to determine this parameter, the losses of acoustic transmission are measured in a sequence of 16 frequency bands in thirds of octaves from 125 to 4000 Hz; then these are compared with the normalized curve (STC, Sound Transmission Class) established by the regulation.

As for the specimen examined the STC value was of 46 dB.

3. SUBJECTIVE REFERENCE SOUND LEVELS

The Chilean regulation NCh 352 classifies subjectively the rooms according to the sound levels that they present, attributing a range to each of them as shown below:

ROOM	SOUND LEVELS (RANGE)
Very quiet	30 dB or below
Quiet	30-40 dB
Moderately quiet	40-50 dB
Noisy	50-60 dB
Very noisy	60-70 dB
Intolerable	70-80 dB
Inadmissible	Over 80 dB

4. Conclusions and remarks

4.1 The sample examined, sent to the Acoustics Laboratory, Construction Physics Department of the Material Research and Experiment Institute (IDIEM) at the University of Chile by the Firm Monolite Chile Ltd, which this Test Certificate no. 230348 is referred to, presents a gross soundproofing of 45 dB (A) and a sound transmission class (STC) equal to 48 dB defined according to the ASTM 413-73 regulations.

4.2 The value obtained is valid only for the examined sample, since in practice some changes may occur because of the use of materials having different densities and thickness of plastering.

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Santiago, January 21st 1998