TEST REPORT
TS EN ISO 10140-2

Report Number	: 060.066.2/2012
Report Date	: 06.04.2012
Testing Reference	: Acoustics-Laboratory Measurement of Sound Insulation of Building Elements Part2: Measurement of Airborne Sound Insulation
Product	: İzobozz - Thermal Insulation Material
Client	: İTBAK – İnşaat Teknik ve Bilimsel Araştırma Kurulu

1. PREFACE

This report comprises of tests and results, which were performed by FTI Facade Testing Institute at the address; Çakıl Village -Baglar Region, PK.39 34540 Çatalca - Istanbul/ TURKIYE

Test sample comprises of a part of thermal insulation material which have been designed by İzobozz Ataziya Tekstil Kimya San. ve Ltd. Şti.

Test sample has been sent to FTI Façade Testing Institute's testing laboratories on 27.02.2012

2. CLIENT

Yapı Araştırma Derneği
İnşaat Teknik ve Bilimsel Araştırma Kurulu İktisadi İşletmesi
Eskişehir Yolu Dumlupınar Bulvarı
Mustafa Kemal Mah. 276 – A Lodumlu-Çankaya
Ankara / TURKIYE

3. TEST METHODS

The above mentioned tests have been carried out as per the test methods provided in project specifications and classified on the standards indicated below. Tests have been reported as the number of 060.066.2 / 2012

TS EN ISO 10140-2	Acoustics-Laboratory Measurement of Sound Insulation of Building Elements Part2: Measurement of Airborne Sound Insulation

4. TEST DATE AND PARTICIPANTS

Tests were performed on 30.03.2012 and 02.04.2012 with the following participants:

Oktay USTA	FTI	Laboratory Manager
Öner ARSLAN	FTI	Testing Engineer
Serhat ÇOLAK	FTI	Testing Engineer

and partially by

Özden ÖZKÖSE	İzobozz Ataziya Tekstil Kimya San. ve Ltd. Şti.

5. DESCRIPTION OF TEST SAMPLE

* Type of Sample	Wall Covering Material
* System Name	İzobozz Thermal Insulation Material
* Dimensions of Sample (LxH)	3890 x 2570 mm
* Surface area of Sample	9,99 m2
* Fixed Joint Length	18,18 m
* Number of Openable Parts	-
* Opening Type	-
* Surface Area of Openable Parts	-
* Opening Joint Lenght	-
* Glass Type	-

System Components

* 190 mm Brick
* Wall Plaster
* Adhesive
* Plastic Filet
* 20 mm İzobozz
* 15 mm İzobozz
* 10 mm İzobozz
* 7 mm İzobozz

6. TEST PERFORMANCE

6.1 Test Results

According to the airborne sound insulation tests conducted in the laboratory, weighted sound reduction index rated according to TS 2381-1 EN ISO 717-1:2005 are given here below.

6.1.1 Result of the Main Structure

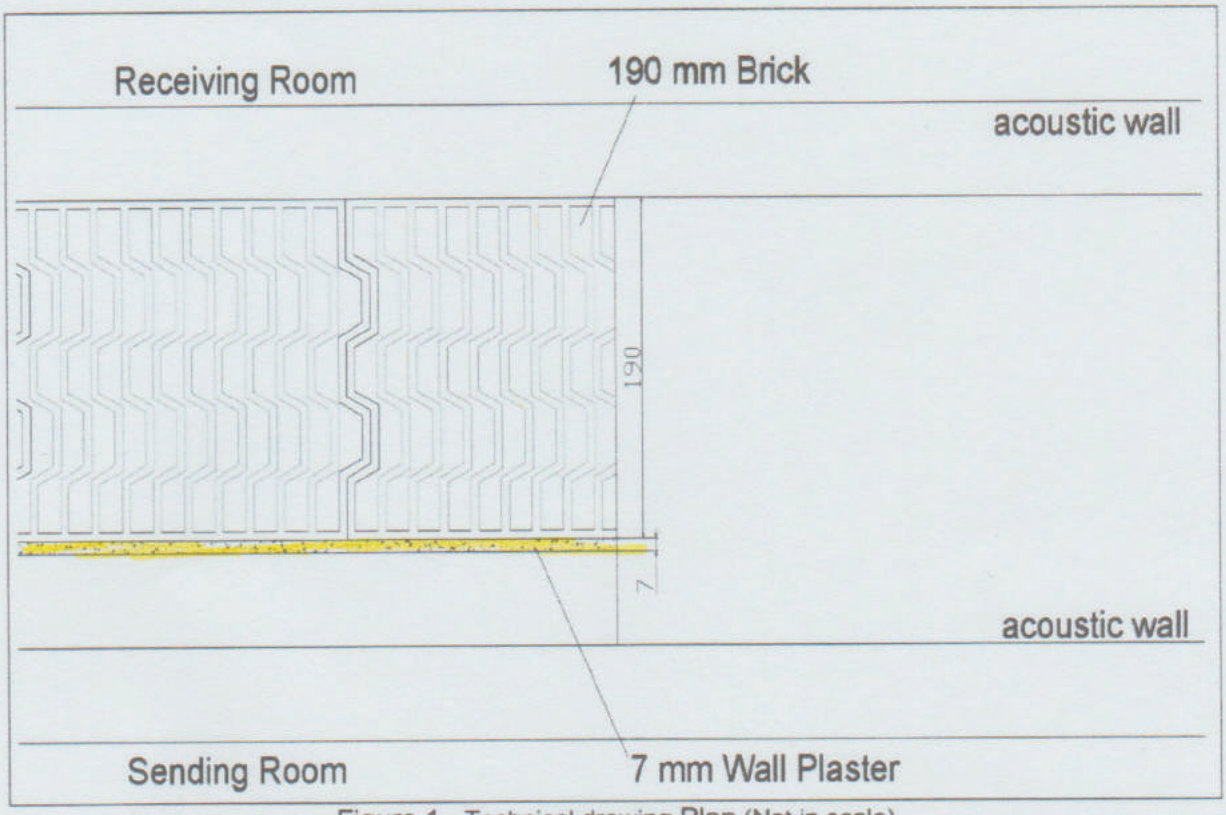


Figure 1 . Technical drawing Plan (Not in scale)

System components are 190 mm bricks and 7 mm wall plaster on the sending room side.

$R_w(C;C_{tr})$ = 33,1 (-0,6 ; -0,2) dB

Local Temperature	:	13	°C
Atmospheric Pressure	:	1005,1	Mbar
Ambient Humidity	:	61,2	%

Apparent sound reduction index according to ISO 10140-2

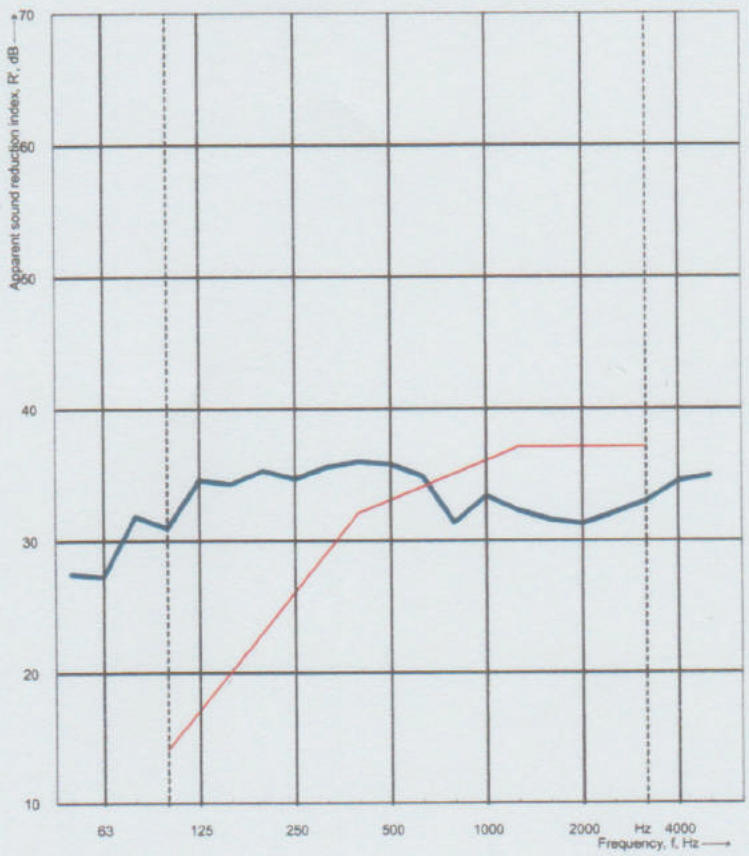
Laboratory measurements of airborne sound insulation of building elements

Client: ITBAK
Date of test: 30.03.2012
Manufacturer:
Test room identification:
Test specimen mounted by:
Product identification:

Description of the specimen: 19 luk tugla + kaynak oda tarafinda 7 mm siva

Size of test opening: 10,00 m^2
Mass per unit area: kg/m^2
Temperature: 13,0 °C
Air humidity: 60 %
Source room volume: 105,8 m^3
Receiving room volume: 95,1 m^3

Frequency f [Hz]	R' 1/3 octave [dB]
50	27,5
63	27,3
80	31,9
100	31,0
125	34,6
160	34,3
200	35,3
250	34,7
315	35,6
400	36,0
500	35,8
630	34,9
800	31,4
1000	33,4
1250	32,3
1600	31,6
2000	31,3
2500	32,1
3150	33,0
4000	34,5
5000	34,9



Rating according to ISO 717-1

$R'_w(C;C_{tr})$ = 33,1 (-0,6 : -0,2) dB

Evaluation based on laboratory measurement results obtained in one-third-octave bands by an engineering method.

$C_{50\text{-}3150}$ = -0,6 dB $C_{50\text{-}5000}$ = -0,2 dB $C_{100\text{-}5000}$ = -0,2 dB
$C_{tr,50\text{-}3150}$ = -0,4 dB $C_{tr,50\text{-}5000}$ = -0,5 dB $C_{tr,100\text{-}5000}$ = -0,3 dB

Company:
No. of test report: 2012.142.A01

Date: 30.03.2012 Signature:

6.1.5 Result of the 7 + 7 mm İzobozz Application

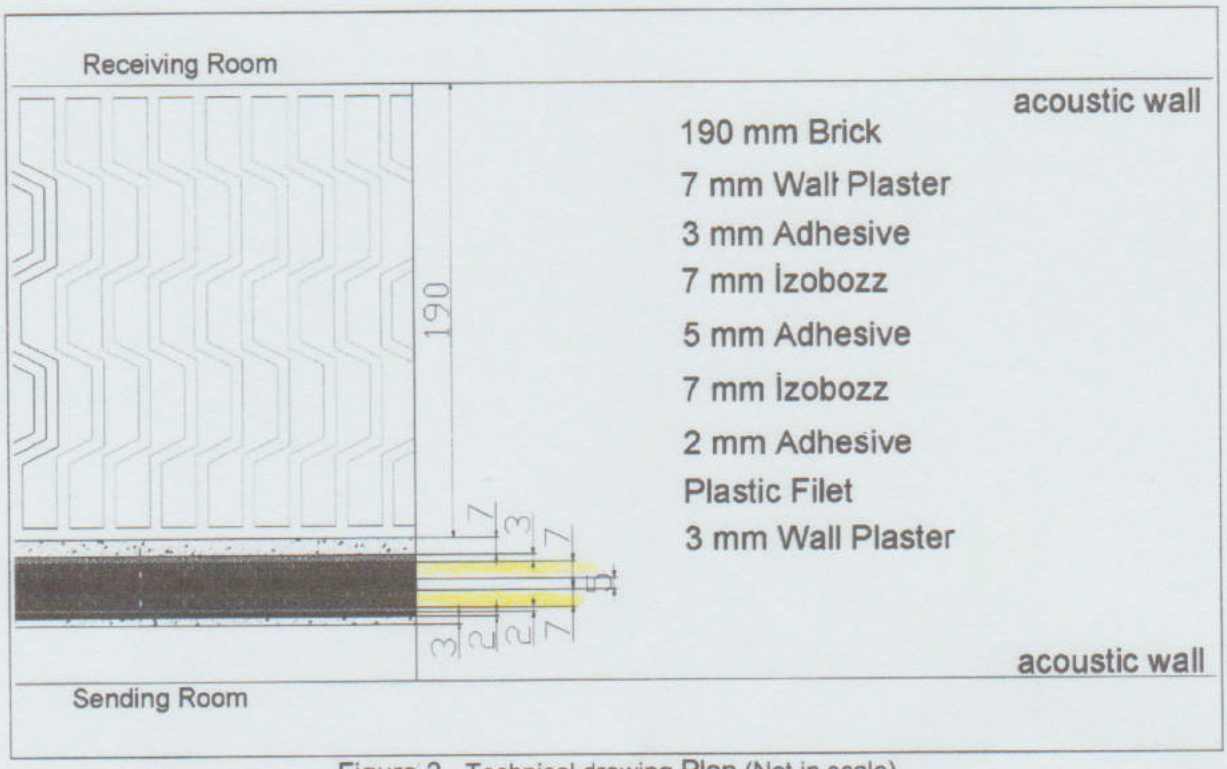


Figure 2 . Technical drawing Plan (Not in scale)

System components are 190 mm bricks, 7 mm wall plaster, 3 mm adhesive, 7 mm izobozz, 5 mm adhesive, 7 mm izobozz, 2 mm adhesive, plastic filet and 3 mm wall plaster on the sending room side.

$R_w(C;C_{tr})$ = 42,3 (-1,0 ; -2,7) dB

Local Temperature	:	12,5	°C
Atmospheric Pressure	:	1017,9	Mbar
Ambient Humidity	:	65	%

Apparent sound reduction index according to ISO 10140-2

Laboratory measurements of airborne sound insulation of building elements

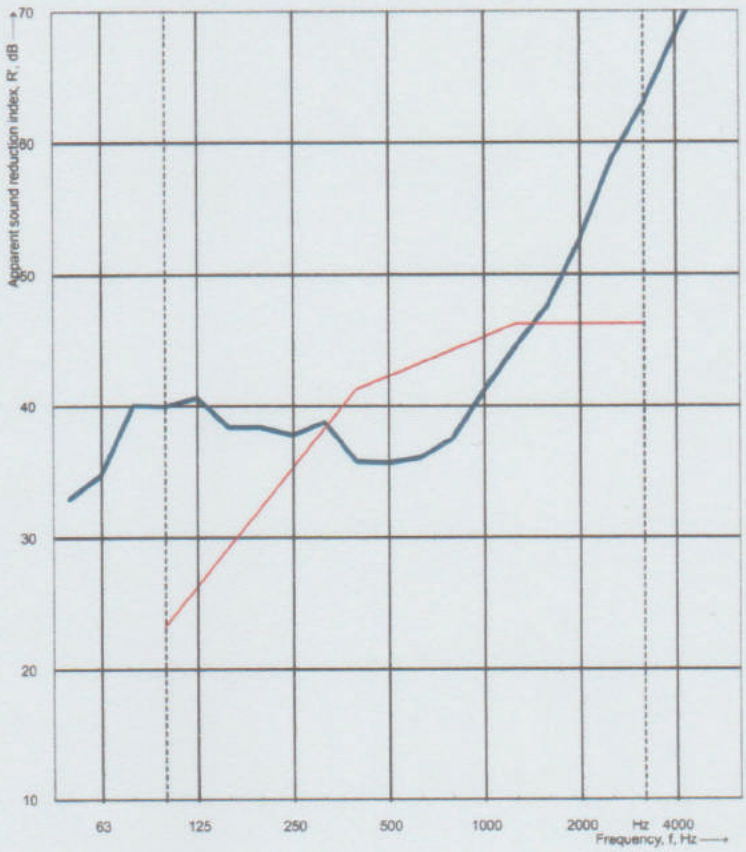
Client: ITBAK
Date of test: 02.04.2012
Manufacturer:
Test room identification:
Test specimen mounted by:
Product identification:

Description of the specimen: 19 luk tugla + 7 mm siva + 3 mm yapistirici + 7 mm izobozz + 5 mm yapistirici + 7 mm izobozz + 2 mm yapistirici + file + 3 mm siva

Size of test opening: 10,00 m^2
Mass per unit area: kg/m^2
Temperature: 12.5 °C
Air humidity: 65 %
Source room volume: 105,8 m^3
Receiving room volume: 95,1 m^3

Frequency f [Hz]	R' 1/3 octave [dB]
50	33,0
63	34,8
80	40,1
100	40,0
125	40,7
160	38,4
200	38,4
250	37,8
315	38,8
400	35,8
500	35,7
630	36,1
800	37,5
1000	41,2
1250	44,6
1600	47,7
2000	52,6
2500	58,7
3150	62,9
4000	68,2
5000	73,2 [1]

[1] Background noise too high



Rating according to ISO 717-1

$R'_w(C;C_{tr})$ = 42,3 (-1,0 ; -2,7) dB

Evaluation based on laboratory measurement results obtained in one-third-octave bands by an engineering method.

$C_{50-3150}$ = -1,0 dB $C_{50-5000}$ = 0,0 dB $C_{100-5000}$ = 0,0 dB
$C_{tr,50-3150}$ = -2,8 dB $C_{tr,50-5000}$ = -2,8 dB $C_{tr,100-5000}$ = -2,7 dB

Company:
No. of test report: 2012.142.A05

Date: 02.04.2012 Signature:

6.2 Mounting in The Laboratory

Test Opening Size	3890 mm x 2570 mm
Test Setup	Modular test wall incorporating openings with differing size. Laboratory conforms to TS EN ISO 10140-5 suppressed flanking transmission suite conditions. Test wall frame is mounted with 50 mm continous acoustic break filled with rockwool insulation and sealed with elastic PU foam and non setting mastic on all sides. The insert frame was adapted to the necessary test area by utilisation of a high sound insulation light weight wall detail.
Mounting of The Specimen	Carried out by staff of the client.
Mounting Conditions	Test specimen was fitted with foam insulation and sealed on both sides with non setting mastic.

6.3 Testing Conditions

Source Room	Volume= 105,8 ; RT ≤ 1,7 s
Receiving Room	Volume= 95,1 ; RT ≤ 1,5 s
Test Opening in The Wall	Largest opening 3890 x 2570 mm (9,99 m^2)
Depth of Test Opening	250 mm
Total Partition Wall Area	21,07 m^2
Maximum Sound Insulation	R'_{max} =59 dB
Sound Source	Dodecahedron loudspeaker placed in two positions inside the source room
Microphone System	Rotating microphone positioned inside the receiving room with 60s/rotation. A microphone with tripod placed in five different positions inside the source room.
Source Signal	Wideband white noise
Filters	One-third octave band filters with centre frequencies within the range of 50-5000Hz

6.4 Test Equipment

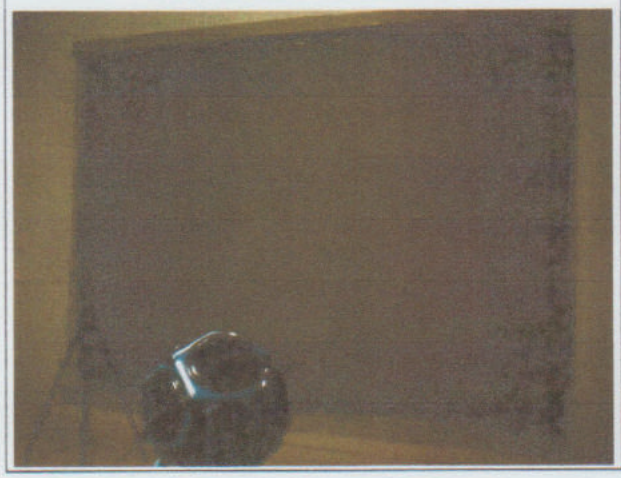
Instrument	Type	Manufacturer
Acoustic Analyser	NOR 140	Norsonic
Sound Level Calibrator	NOR 1251	Norsonic
Sound Source	NOR 270	Norsonic
Amplifier	NOR 280	Norsonic
Rotating Microphone Boom	NOR 265	Norsonic
Microphone Ext. Cables	NOR 1494	Norsonic
Temperature-Humidity Sensor	TFA Dostmann REF 486	TFA Dostmann/Wertheim

6.5 Detailed Results

Results obtained from the airborne sound insulation tests of the specimen are given in the following graphs prepared according to TS 2381-1 EN ISO 717-1:2005

Background noise correction was necessary for 2012.142.A02 and 2012.142.A05 tests.

7. PICTURE OF TEST SAMLE

View from the source room	View from the receiving room
	

8. RESULTS

	CONDITIONS	RESULTS	CLASSIFICATION
TS EN ISO 10140-2	190 mm bricks + 7mm wall plaster	R_w (C;C_{tr}) = 33,1 (-0,6 ; -0,2) dB	-
	190 mm bricks + 7 mm wall plaster + 3 mm adhesive + 20 mm izobozz + 2 mm adhesive + plastic filet + 3 mm wall plaster	R_w (C;C_{tr}) = 45,9 (-1,3 ; -4,0) dB	-
	190 mm bricks + 7 mm wall plaster + 3 mm adhesive + 15 mm izobozz + 2 mm adhesive + plastic filet + 3 mm wall plaster	R_w (C;C_{tr}) = 46,5 (-1,4 ; -4,0) dB	-
	190 mm bricks + 7 mm wall plaster + 3 mm adhesive + 10 mm izobozz + 2 mm adhesive + plastic filet + 3 mm wall plaster	R_w (C;C_{tr}) = 38,5 (-1,5 ; -2,9) dB	-
	190 mm bricks + 7 mm wall plaster + 3 mm adhesive + 7 mm izobozz + 5 mm adhesive + 7 mm izobozz + 2 mm adhesive + plastic filet + 3 mm wall plaster	R_w (C;C_{tr}) = 42,3 (-1,0 ; -2,7) dB	-

PERFORMANCE TEST REPORT

Measurement of Airborne Sound Insulation

Test Report No: 060.066.2 / 2012

Rendered to	: **İnşaat Teknik ve Bilimsel Araştırma Kurulu**	Norms Applied	: **TS EN ISO 10140-2**
			: **EN ISO 717-1**
			:
Product	: **İzobozz - Thermal Insulation Material**		:
		Classification Norms	:
Sample Size	: **3890 x 2570 mm**		:
			:
Sample Description	: **20 mm İzobozz, 15 mm İzobozz**		:
	: **10 mm İzobozz, 7 + 7 mm İzobozz**		
	:	Test Comp. Date	: **02 / 04 / 2012**
Test Performed	: **Measurement of Sound Insulation**	Report Date	: **06 / 04 / 2012**
	:	Record Retention Date	: **06 / 04 / 2017**
	: **Value of the Main Structure (m.s.)**	Number of Pages	: **15**
	Rw (C ; Ctr) = 33,1 (-0,6 ; -0,2) dB	Number of Annex Pages:	

Test Results : The Test sample performed in accordance of to following classifications

TS EN ISO 10140-2 : **Rw (C ; Ctr) = 45,9 (-1,3 ; -4,0) dB for 20 mm İzobozz (+m.s.)*****

TS EN ISO 10140-2 : **Rw (C ; Ctr) = 46,5 (- 1,4 ; -4,0) dB for 15 mm İzobozz (+m.s.)*****

TS EN ISO 10140-2 : **Rw (C ; Ctr) = 38,5 (-1,5 ; -2,9) dB for 10 mm İzobozz (+m.s.)*****

TS EN ISO 10140-2 : **Rw (C ; Ctr) = 42,3 (-1,0 ; -2,7) dB for 7+7 mm İzobozz (+m.s.)*****

*This Test Report includes specific test data, results, photographic documention and build drawings of the sample submitted for testing only and thus does not prejudge other related products.

**This certificate is valid with the related test report which are presented together.

***These thermal insulation materials were applied on the main structure and then tested.

Oktay Usta
Testing Manager

Öner ARSLAN
Testing Engineer

F.T.I. Fasad Teknoloji Merkezi Ltd.Şti.
Rüzgarlıbahçe Mah. Toyota K Plaza Kat.5 34805 Kavacık / İstanbul / TÜRKİYE
Tel : +90 216 425 03 25 Fax : +90 216 425 03 20
www.fti-europe.com