System Development

Laboratory Sound Insulation Test Report

Sample type: Palm strand board (PSB) Partition Wall

Test sponsor: Abanos Furniture & Decoration Industry LLC

Report number: DLR3596

Date: 9 April 2025 Revision: 0

UKAS TESTING
4559

Al Futtaim Element Materials Technology Dubai L.L.C
Facade Testing & Advisory Services Division

Quality management

Version	Date	Information about the document		
0	9 April 2025	Description	Initial issue	
			Prepared by	Reviewed & authorised by
		Name	Muhammed Ali Irshad	Manoj Kumar
		Designation	Acoustic Test Engineer	General Manager
		Signature		
Signed and issued on behalf of Al Futtaim Element Materials Technology Dubai L.L.C				

Contents

1. Introduction

This report describes the sound insulation test performed at the Al Futtaim Element Materials Technology Dubai L.L.C (AFE) laboratory at Plot 597-451, Dubai Investments Park, Dubai, at the request of the test sponsor listed in Table 1.

Table 1 Test sponsor details

Test sponsor	Address
Abanos Furniture & Decoration Industry LLC	Dubai Investment Park 1, Dubai, UAE, +971 4 885 1885 / +971 55 390 6957

AFE is a UKAS accredited testing laboratory, no. 4559 and is accredited to ISO/IEC 17025:2017, which assesses the technical competence of the laboratory, as well as its quality management systems.

1.1 Purpose of testing

The test was conducted on 28 March 2025 to determine the acoustic performance of a partition wall system installed in the laboratory with respect to its ability to reduce the transmission of sound from one space or room to an adjacent room.

The test method was in accordance with the AFE method statement DMA5005 Rev.0 and the following standards.

- BS EN ISO 10140-2:2021
- BS EN ISO 717-1:2020
- BS EN ISO 3382-2:2008

This test report relates only to the actual sample as tested and described herein.

The test was witnessed wholly or in part by the test witnesses listed in Table 2.

Table 2 Test witnesses

Test witness	Company
Nitin Kumar	Abanos Furniture & Decoration Industry LLC

The test was conducted by Jiji Samgadharan / Muhammed Ali Irshad of AFE.

2. Summary of test results

The Sound Reduction Index (Rw) of the sample was **48 dB** when tested in accordance with BS EN ISO 10140-2:2021 and classified in accordance with BS EN ISO 717-1:2020.

Graphical & tabular representations of the test results are given in Section 6.

The above result is valid only for the tested sample as received, detailed and constructed as per the drawings with any marked variations as attached in Appendix A of this report, and the conditions under which the test was conducted. Details of the controlled dismantle of the sample are included in Section 7.

Any material properties, classifications, item no. / catalogue no. / brand references detailed in the drawings, if applicable, were not verified by AFE.

Measurements performed in accordance with this standard on nominally identical constructions and acoustical conditions may produce different results.

3. Test apparatus

3.1 Acoustic test chamber

The acoustic test facility comprises an adjacent pair of acoustically sealed semi-reverberant chambers. Access to both chambers is via acoustic access doors. Both chambers have been installed on separate, isolated acoustic floor systems to limit sound and vibrational energy transference (flanking) between the chambers and from the immediate surroundings.

The walls of the test facility are formed from sound absorbent acoustic panelling that has been specially designed to provide a high sound transmission loss capability whilst producing the desired reverberant levels for the semi-reverberant acoustic test chamber.

The sample was installed into the opening between the test chambers, provided by the separate, isolated sample holder.

The inside dimensions of the test chambers are as detailed in the table below.

Chamber	Length (mm)	Width (mm)	Height (mm)	Volume (m^3)
Source Room	7,080	5,753	4,425	180
Receiving Room	7,360	5,980	4,600	202

3.2 Instrumentation & equipment

Noise levels & reverberation times were measured using a Level 1 Sound Analyser compliant with BS EN 61672-1:2013 Type 1 and a sound calibrator compliant with BS EN 60942:2018.

The following instrumentation and test equipment was used during the testing.

Item	Description	Manufacturer	Model	Serial number	AFE Ref. no.	Calibration due date
Sound level meter	Dynamic signal analyser	Bruel & Kjaer	Type 2250	2722618	CLD741	08/11/26
Preamplifier	½" preamplifier	Bruel & Kjaer	ZC 0032	7337	CLD617A	08/11/26
Microphone	½" pressure type, condenser microphone	Bruel & Kjaer	Type 4189	3130870	CLD617B	11/11/26
Calibrator	Sound calibrator	Bruel & Kjaer	Type 4231	2606005	CLD617C	08/08/25
Sound source	Loudspeaker	Bruel & Kjaer	Type 4292	027015	CLD602	N/A
Rotating boom	Rotating boom	Bruel & Kjaer	3923	2664263	CLD603	N/A
Pink noise source	Pink noise signal	Bruel & Kjaer	Type 2250	2600451	CLD741	08/11/26

All measuring instruments and relevant test equipment with appropriate indication have been calibrated and copies of the calibration certificates are available upon request.

4. Test sample

4.1 Installation

The sample was installed in the acoustically separated test aperture between the acoustic chambers, without bridging the two chambers. The surrounding structure was solely the test laboratory structural wall elements.

A filler wall reducing element was used to reduce the test opening to the size of the sample. It consisted of a 350 mm thick, double metal stud (36 mm by 73.5 mm) wall construction with two layers of 12.7 mm standard plasterboard & two layers of 15.9 mm fire-rated plasterboard on both sides. The cavity between the inner layers of plasterboard was filled with high density rockwool insulation. The filler wall had an Rw rating of 67 dB.

To restrict the passage of any flanking noise between the chambers, any instances of bridging between the acoustic chambers were investigated and cleared following the installation of the sample.

The sample was installed in the test chamber, by representatives of Abanos Furniture & Decoration Industry LLC, on 26 March 2025. The sample was dismantled by Abanos Furniture & Decoration Industry LLC on 29 March 2025.

4.2 Description

The sample was a partition wall system. The sample was approximately 3.0 m wide by 2.7 m high. The AFE sample reference number for the sample is DA5005A. The photograph below shows an external view of the test sample.

From the information supplied by Abanos Furniture & Decoration Industry LLC, we understand that the partition wall comprised of the following:

Profiles: 52 mm x 32 mm x 0.5 mm UW deep flange / head track, 52 mm x 32 mm x 0.5 mm UW runner / bottom track & 50 mm x 35 mm x 0.5 mm CW studs.

Boards: 1 layer of 18 mm Palm strand board (PSB FR Ultra) to both the outer and inner sides of the framing. 2 coat of FCC 9000 flame core coat on the exterior side of the boards.

Insulation: 1 layer of 50 mm thick insulation (approx. 64 kg/m3) within the stud cavity.

All joints & screw holes were sealed using Elastomeric Firecaulk sealant and sealant was applied around the perimeter.

See drawing number ID-FR-QC-001 Rev00, ID-FR-QC-002 Rev00 and ID-FR-QC-003 Rev00 in Appendix A for further details.

5. Test procedure

The sound insulation testing was carried out in accordance with BS EN ISO 10140-2:2021 which was followed in every respect. The test was carried out to ascertain the airborne sound insulation capabilities of the sample in laboratory conditions where transmission of sound on flanking paths is suppressed, from the source room to the receiving room, in one direction only.

The testing was carried out in the one-third octave band of frequencies ranging from 100 Hz – 5,000 Hz as per BS EN ISO 10140-2:2021 requirements.

5.1 Methodology

The loudspeaker was set up in the corner of the sound source chamber – 2 positions were used.

The microphone, pre-amplifier and sound level meter were calibrated prior to and after testing using the Bruel & Kjaer Type 4231 calibrator.

Two measurements were taken in the source room, using the rotating boom, at each loudspeaker position.

Two measurements were taken in the receiving room, using the rotating boom, at each loudspeaker position.

Both the source & receiving room levels were measured for each loudspeaker position before the loudspeaker was moved.

One background measurement was taken in the receiving room, using the rotating boom.

Two reverberation time measurements were taken in the receiving room, using the rotating boom, at each loudspeaker position – 2 positions were used. The reverberation time testing was in accordance with BS EN ISO 3382-2:2008.

The receiving room readings were corrected for the ambient and reverberation time factors. To evaluate the sound reduction index of the sample, the differences between the source and receiving room readings were obtained and subsequently compared with a set of reference curves following the procedure detailed in BS EN ISO 717-1:2020 to derive a single number rating (the Sound Reduction Index denoted as 'R_w') with correction factors, which represents the sound insulation of the building element subjected to the test.

Detailed test procedures, data for flanking limit tests, repeatability measurements and reference specimen tests are available on request.

5.2 Controlled dismantle

AFE witnessed the dismantling of the test sample and compared the as-built (and therefore as-tested) installation against the drawings supplied. See Section 7 for details.

6. Test results

The test results of the sample are presented in graphical & tabular representations below.

Laboratory Measurement of Airborne Sound Transmission Loss of Building Partitions and Elements In Accordance With BS EN ISO 10140-2:2021

Client: Abanos Furniture & Decoration Industry LLC Date of Test: 28 March 2025

Sample: Partition Wall System:
Profiles: 52 mm x 32 mm x 0.5 mm UW deep flange / head track, 52 mm x 32 mm x 0.5 mm UW runner / bottom track & 50 mm x 35 mm x 0.5 mm CW studs. Boards: 1 layer of 18 mm Palm strand board (PSB FR Ultra) to both the outer and inner sides of the framing. 2 coat of FCC 9000 flame core coat on the exterior side of the boards. Insulation: 1 layer of 50 mm thick insulation (approx. 64 kg/m3) within the stud cavity. All joints & screw holes were sealed using Elastomeric Firecaulk sealant and sealant was applied around the perimeter. See drawing number ID-FR-QC-001 Rev00, ID-FR-QC-002 Rev00 and ID-FR-QC-003 Rev00 in Appendix A for further details.

Sample Size: 2.7 m high x 3.0 m wide. Sample Area, S 8.1 m^2

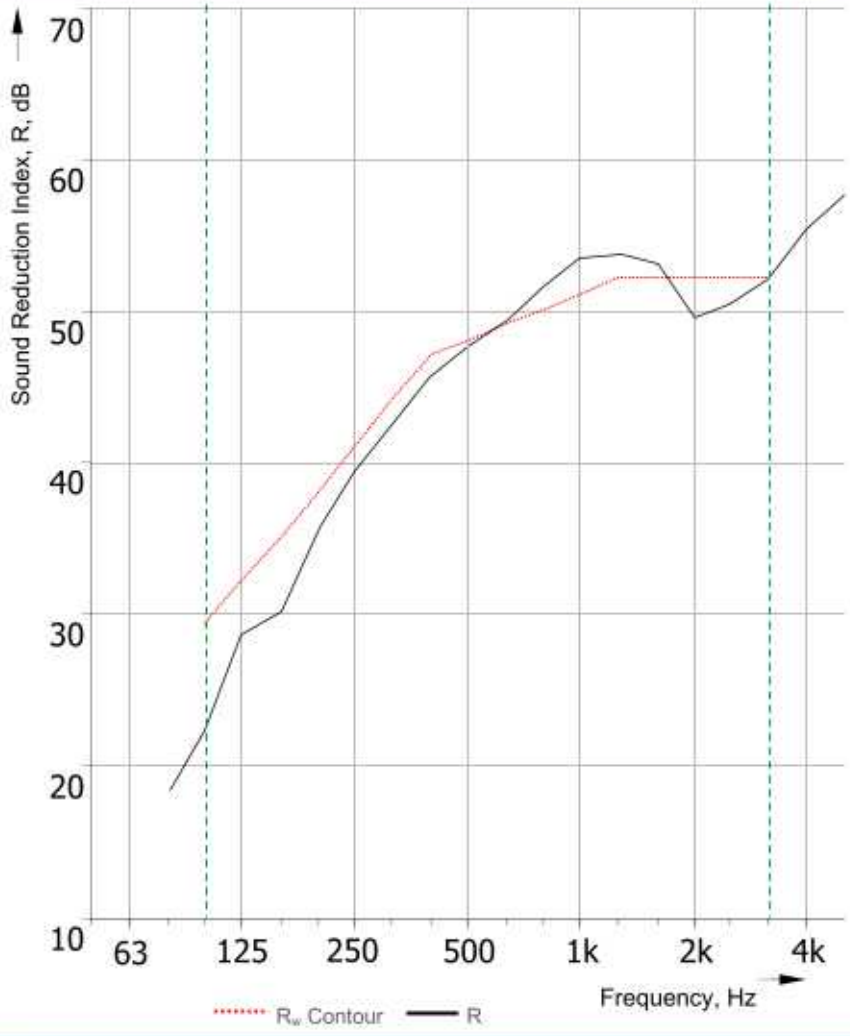
Source Room Volume: 180.0 m^3

Receiving Room Volume: 202.0 m^3

Test Conditions:	Temp. (±0.7 °C)	RH (±3.0%)	Atm (±0.5 mbar)
Source Room:	22.3	49	1005
Receiving Room:	22.1	49	1005

Al Futtaim Element Materials Technology Dubai L.L.C
Facade Testing & Advisory Services Division

Frequency f Hz	R 1/3 Octave dB
50	-
63	-
80	17.4
100	22.1
125	28.6
160	30.0
200	35.8
250	39.4
315	42.4
400	45.7
500	47.7
630	49.2
800	51.8
1000	53.5
1250	53.8
1600	53.0
2000	49.7
2500	50.5
3150	52.0
4000	55.4
5000	57.4



Rating according to BS EN ISO 717-1:2020, over the frequency range 100 Hz – 3150 Hz:

Rw (C;Ctr) = 48 (-3; -8) dB $C_{100\text{-}5000}$ = -2 dB $C_{tr100\text{-}5000}$ = -8 dB

Sum of unfavourable deviations = 25.9 dB

Evaluation based on laboratory measurement

AFE Sample Reference: DA5005A Name of Test Institute: Al Futtaim Element MTD L.L.C

Tested by: Jiji Sarngadharan / Muhammed Ali Irshad

7. Controlled dismantle

AFE witnessed the controlled dismantle of the sample, performed visual & dimensional checks on the components, where possible, and compared them against the supplied information. Refer to the drawings in Appendix B.

Any material properties, classifications, item no. / catalogue no. / brand references detailed in the drawings, if applicable, were not verified by AFE.

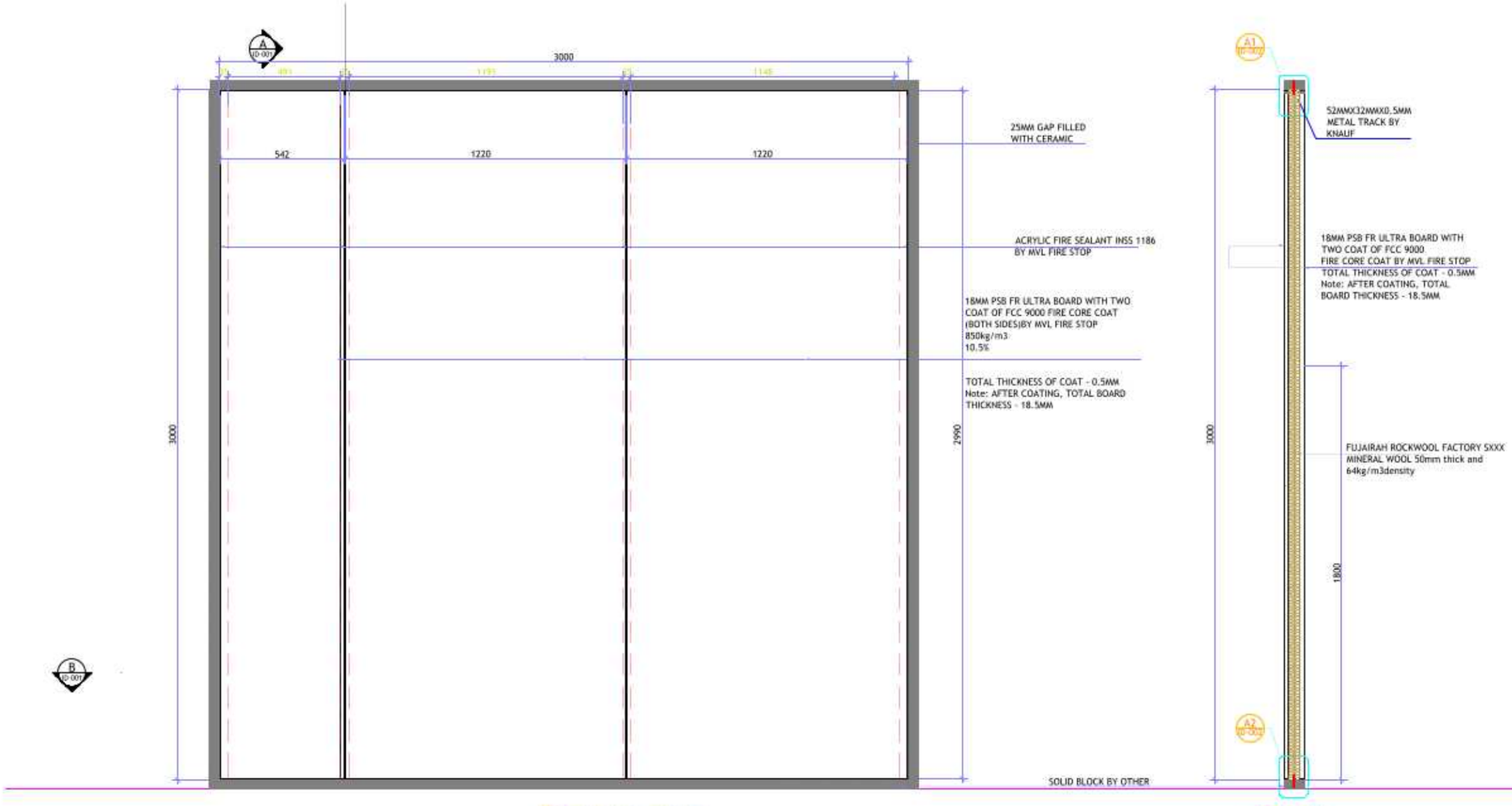
Date of dismantle: 29 March 2025

No variations were observed.

Appendix A Drawings

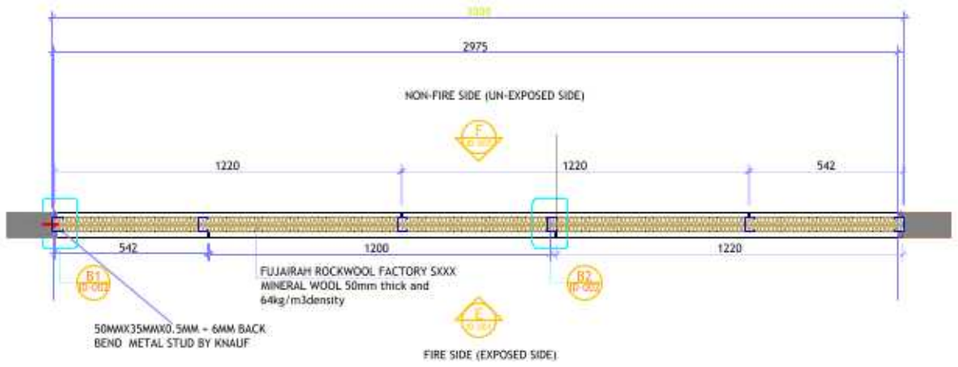
The following un-paginated sheets are copies of Abanos Furniture & Decoration Industry LLC drawing:

- ID-FR-QC-001 Rev00
- ID-FR-QC-002 Rev00
- ID-FR-QC-003 Rev00



E ELEVATION(EXPOSED SIDE)

A SECTION



B PLAN

SR. NO.	DESCRIPTION
1.	FUJAIRAH ROCKWOOL FACTORY SXXX MINERAL WOOL 50mm thick and 64kg/m3 density
2.	18MM PSB FR ULTRA BOARD WITH TWO COAT OF FCC 9000 FIRE CORE COAT (EXTERIOR SIDE OF BOTH THE EXPOSED & UNEXPOSED FACES) BY MVL FIRE STOP(850kg/m3 10.5%-MOISTURE)
3.	KNAUF SELF TAPPING DRYWALL SCREWS 3.5MMX35MM (CARBON STEEL)
4.	ACRYLIC FIRE SEALANT INSS 1186 (ALONG THE STEEL FRAMEWORK AROUND THE PERIMETER OF THE BOARD AS WELL AS U-TRACKS AND C-STUDS) BY MVL FIRE STOP
5.	C - TYPE STUD BY KNAUF - 50MMX35MMX0.5MM + 6MM BACK BEND
6.	TRACK BY KNAUF - 52MMX32MMX0.5MM
7.	WEDGE ANCHOR BOLT BY KNAUF - 6MMX40MM USE FOR FIXING STUD / TRACK WITH AAC OR SOLID BLOCK (ZINC ELECTRO PLATED)
8.	4.2 x 13mm CARBON STEEL WAFER HEAD SELF DRILLING SCREW

NOTE : AFTER COATING , THICKNESS OF PSB FR ULTRA BOARD IS 18.5 MM

Al Futtaim Element Materials Technology Dubai L.L.C
Facade Testing & Advisory Services Division

NOTES:-

1. ALL DIMENSIONS ARE IN MM UNLESS OTHERWISE NOTED.
2. FINISH AS PER APPROVED SAMPLE.

Rev.	Date	Description.	By

CLIENT

ABANOS

CONSULTANT

MAIN CONTRACTOR

PROJECT

SUB- CONTRACTOR

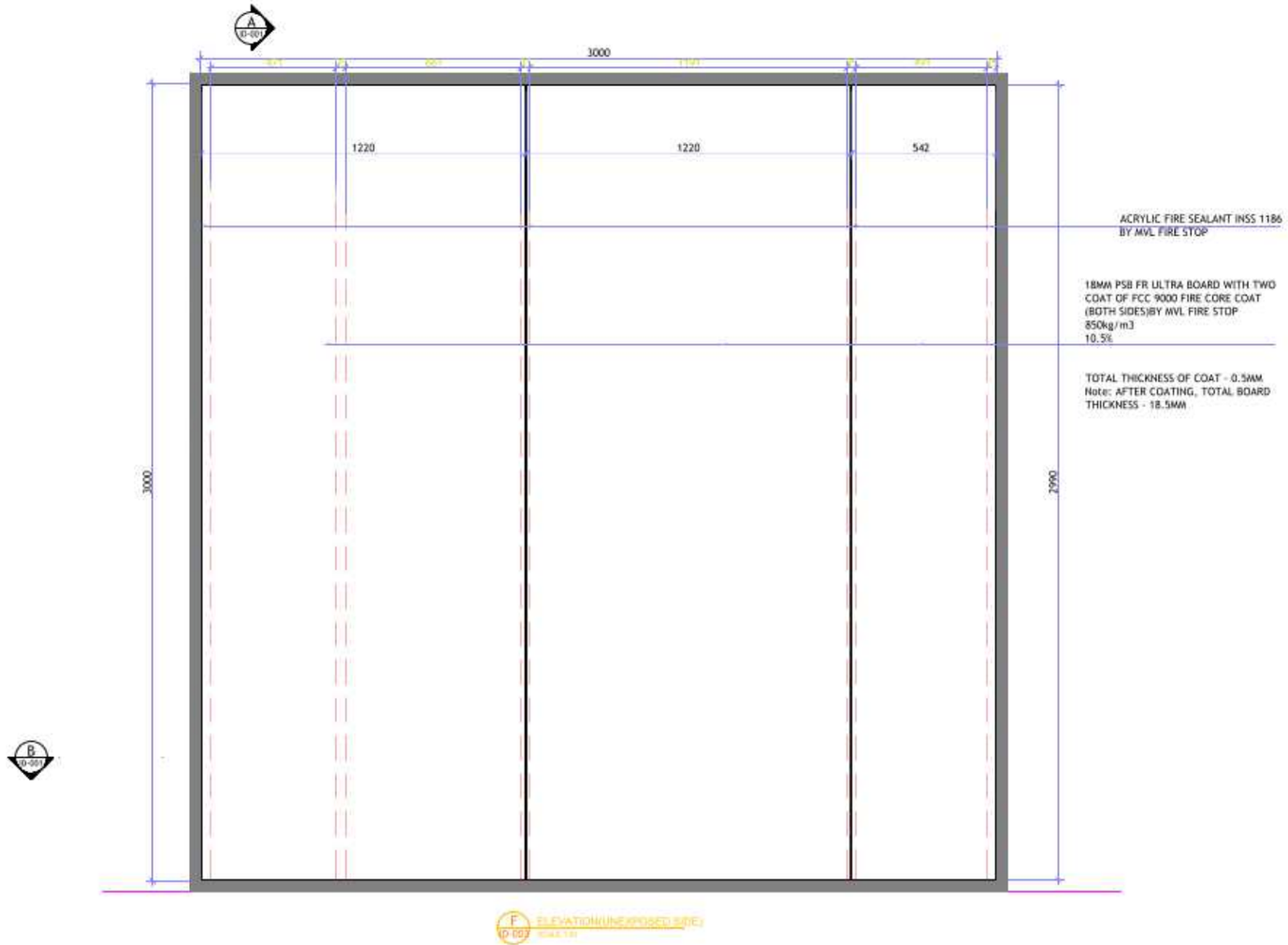
ABANOS
INTERIOR FIT-OUT & JOINERY
P.O. BOX 115480, DUBAI, TEL.:+971 4 8996111, FAX : +971 4 8859966
E-mail: mail@abanos.ae, Web: www.abanos.ae

DRAWING TITLE

FIRE TESTING - PARTITION WALL

DRAWN BY	CHK.	APPD.	DATE
			28.02.2025

SCALE	DRAWING NO.	REV.
1:15	ID-FR-QC-001	00



NOTES:-

1. ALL DIMENSIONS ARE IN MM UNLESS OTHERWISE NOTED.
2. FINISH AS PER APPROVED SAMPLE.

Rev.	Date	Description.	By

CLIENT

ABANOS

CONSULTANT

MAIN CONTRACTOR

PROJECT

SUB- CONTRACTOR

ABANOS
INTERIOR FIT-OUT & JOINERY

P.O. BOX 115480, DUBAI, TEL.:+971 4 8996111, FAX : +971 4 8859966
E-mail: mail@abanos.ae, Web: www.abanos.ae

DRAWING TITLE

FIRE TESTING - PARTITION WALL

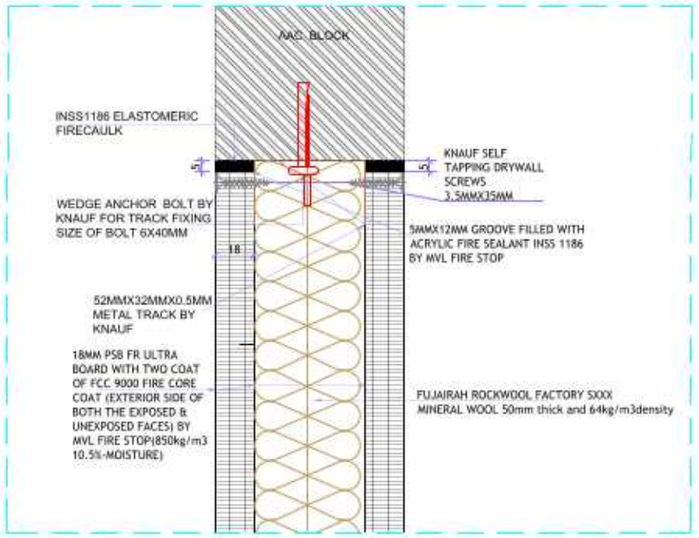
DRAWN BY	CHK.	APPD.	DATE
			28.02.2025

SCALE	DRAWING NO.	REV.
1:15	ID-FR-QC-003	00

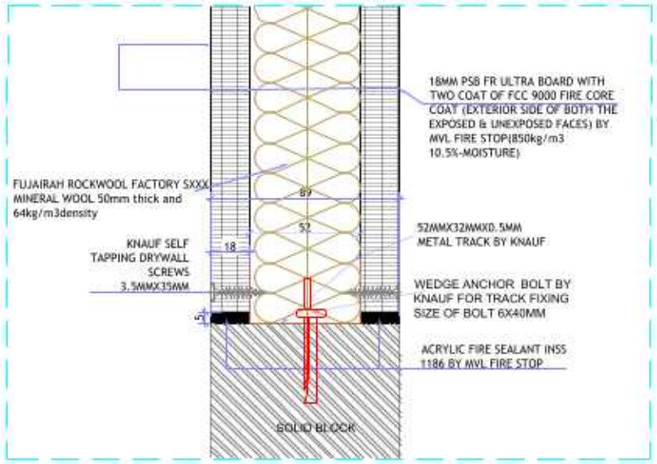
Al Futtaim Element Materials Technology Dubai L.L.C
Facade Testing & Advisory Services Division

NOTES:-

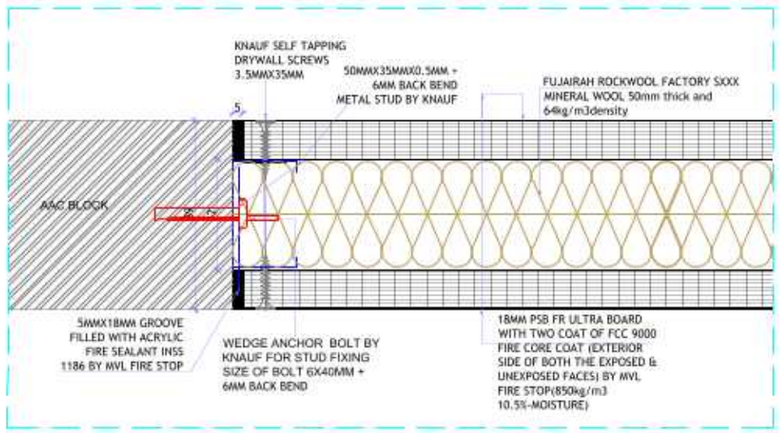
1. ALL DIMENSIONS ARE IN MM UNLESS OTHERWISE NOTED.
2. FINISH AS PER APPROVED SAMPLE.



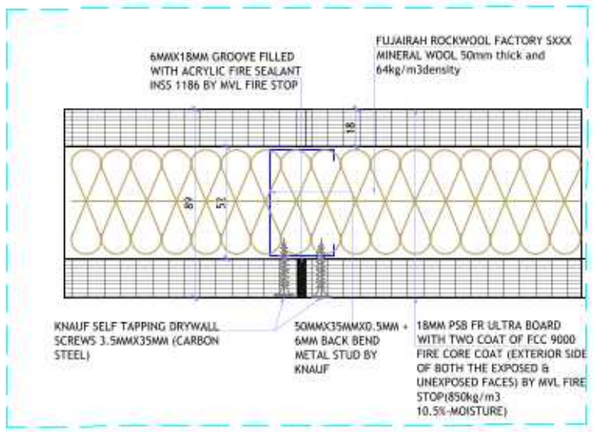
A1 SPOT DETAIL D-001



A2 SPOT DETAIL D-001



B1 SPOT DETAIL D-001



B2 SPOT DETAIL D-001

Al Futtaim Element Materials Technology Dubai L.L.C
Facade Testing & Advisory Services Division

Rev.	Date	Description.	By

CLIENT

ABANOS

CONSULTANT

MAIN CONTRACTOR

PROJECT

SUB- CONTRACTOR

ABANOS
INTERIOR FIT-OUT & JOINERY

P.O. BOX 115480, DUBAI, TEL:+971 4 8996111, FAX : +971 4 8859966
E-mail: mail@abanos.ae, Web: www.abanos.ae

DRAWING TITLE

FIRE TESTING - PARTITION WALL

DRAWN BY	CHK.	APPD.	DATE
			28.02.2025

SCALE	DRAWING NO.	REV.
1:15	ID-FR-QC-002	00

Al Futtaim Element Materials Technology Dubai L.L.C
Facade Testing & Advisory Services Division

Al Futtaim Element Materials Technology Dubai
Plot 597-451, Dubai Investments Park 2,
P.O. Box 34924,
Dubai, UAE
T: +971 4 886 8715
info.facade@element.com

-- End of report --