



Test Report

Testing of limited safety against ball throwing

Report-No.: 903 1925 000-2/Man/Sgm

Client: Knauf Aquapanel GmbH & Co. KG.
Kipperstraße 19
44147 Dortmund

Order-No. (Client): -

Order-No. (MPA): 903 1925 000

Test Item: **Wall system
„W382.de with AQUAPANEL Cement Board Indoor
(Lighter.Easier.Faster.)“**

Specification Applied [1] DIN 18032-3:1997-04
Sports halls – Halls for gymnastics, games and
multi-purpose use-Part 3: testing of safety against ball throwing

Date of Receipt of Test Item 2016-09-12

Date of Test: 2016-09-16

Date of Report: 2016-10-10

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Enclosures : 3

Supplements:

Total Number of Pages: 6

Number of Reports: 1

Die Prüfergebnisse beziehen sich ausschließlich auf die Prüfgegenstände.

Veröffentlichung des vorliegenden Berichtes (auch auszugsweise) ist nur mit schriftlicher Genehmigung der MPA Universität Stuttgart zulässig.

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Die Akkreditierung gilt für die in den Urkunden aufgeführten Prüfverfahren.

1 Purpose of Investigation

With writing of 2016-05-09 you ordered the Materials Testing Institute University of Stuttgart with testing of the limited safety against ball throwing on a wall system according to DIN 18032-3 [1].

2 Tests and Analyses Performed

2.1 Description of the element tested

The element tested was the wall system

„W382.de with AQUAPANEL Cement Board Indoor (Lighter.Easier.Faster.)“

The wall system tested had the dimensions 1875 mm x 2250 mm.

The wall system had a double layer paneling of mineral building boards (AQUAPANEL Cement Board Indoor,Lighter.Easier.Faster.) which are made of Portland cement and aggregates. These boards had the dimensions of 1250 mm x 900 mm x 12,5 mm and were reinforced on both sides with a glass-fiber mesh. The boards had a mass per unit area of 11 kg/m² and an oven dry density of 750 kg/m³.

The base layer of the paneling was screwed to the metal lathwork with 6 screws for each board (AQUAPANEL Maxi screw SN 25). The panels of this layer were assembled with butt joints. The second layer was screwed to the base layer with all 250 mm with AQUAPANEL Maxi Screws SN 39. The second layer was assembled with an offset of the joints to the base layer.

The joints of this layer were filled with AQUAPANEL Joint Adhesive (PU).

The covering of the surface of the wall system was done with AQUAPANEL Board Primer and AQUAPANEL Joint Filler & Skim Coating – white (thickness of 4 cm), reinforced with AQUAPANEL Reinforcing Mesh.

The substructure was built with metal profiles (CW 50/50/06 und UW 50/40/06). This substructure was fixed vertically to the substrate all 625 mm.

2.2 Execution of the tests and analyses

The test was performed according to DIN 18032-3 [1] (accredited test method according to DIN EN ISO / IEC 17025, see DAkkS-certificate D-PL-11027-04-07).

The tests were performed in a laboratory at room temperature.

3 Results of Investigation

Table 1: Results of determination of safety against ball throwing according to DIN 18 032-3 [1] on the wall system „W382.de with AQUAPANEL Cement Board Indoor (Lighter.Easier.Faster.)“

Ball	Impact angle in degree	Number of tests	Deterioration of test item
Handball	90	30	none
Handball	45	12	
Handball	45	12	

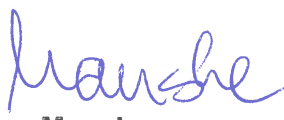
The tested element passed the test without damaging.

The test was done only with the handball as the wall system will only be applied in a height > 2m over surface of the sports hall floor.

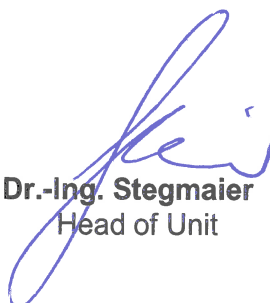
Therefore the element can be evaluated as limited safe against ball throwing according to DIN 18032-3 [1].

This document is valid till 2018-10-10

If the manufacturer proofs and the testing institute confirms that the element tested is further-more produced and installed without changes of relevant parts of the construction, the retest at the date mentioned is not necessary.


Manske
Testing Engineer




Dr.-Ing. Stegmaier
Head of Unit

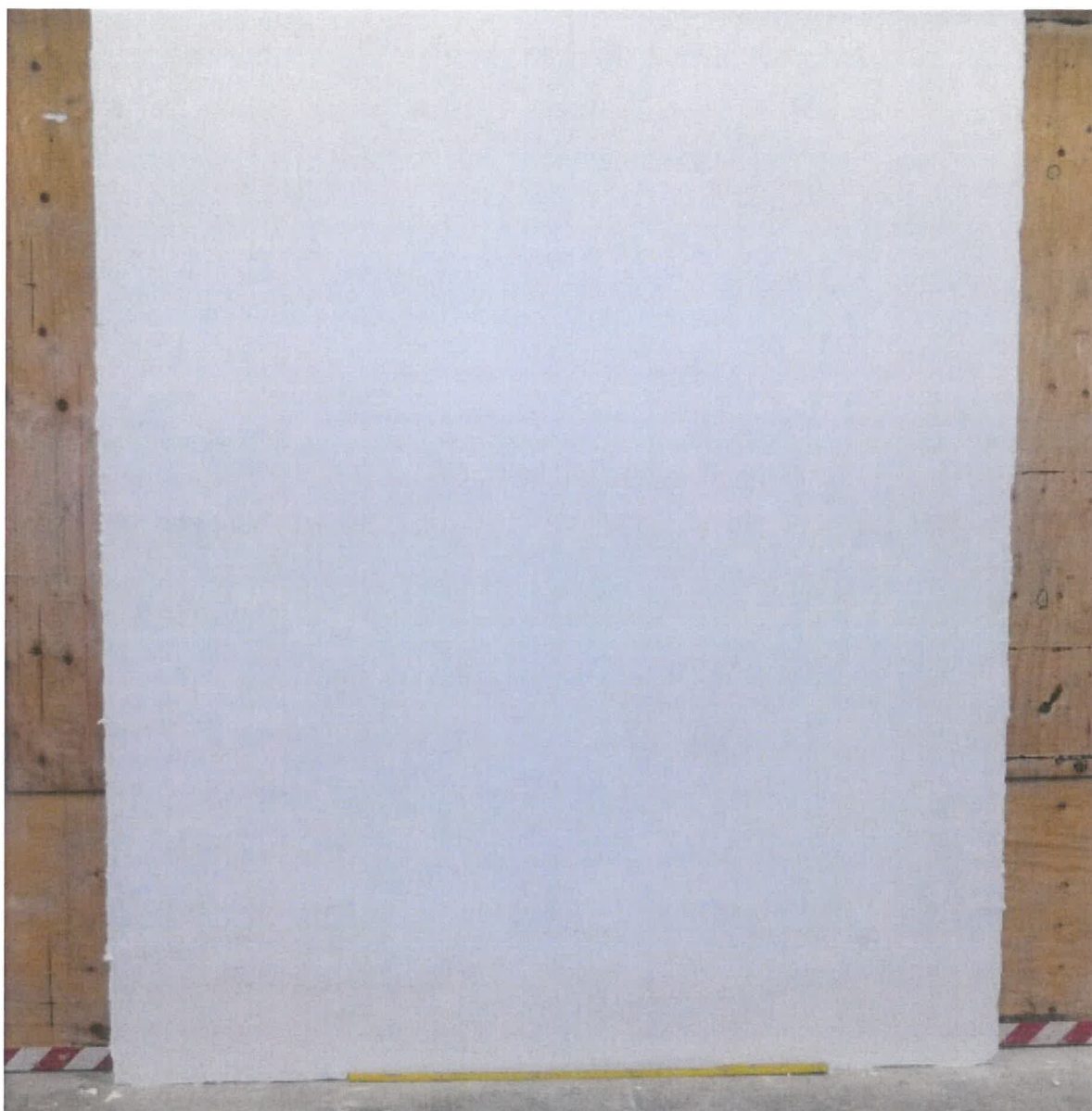


Figure 1:
Total view: Visible face
Wall system “W382.de with **AQUAPANEL Cement Board Indoor (Lighter.Easier.Faster)**”



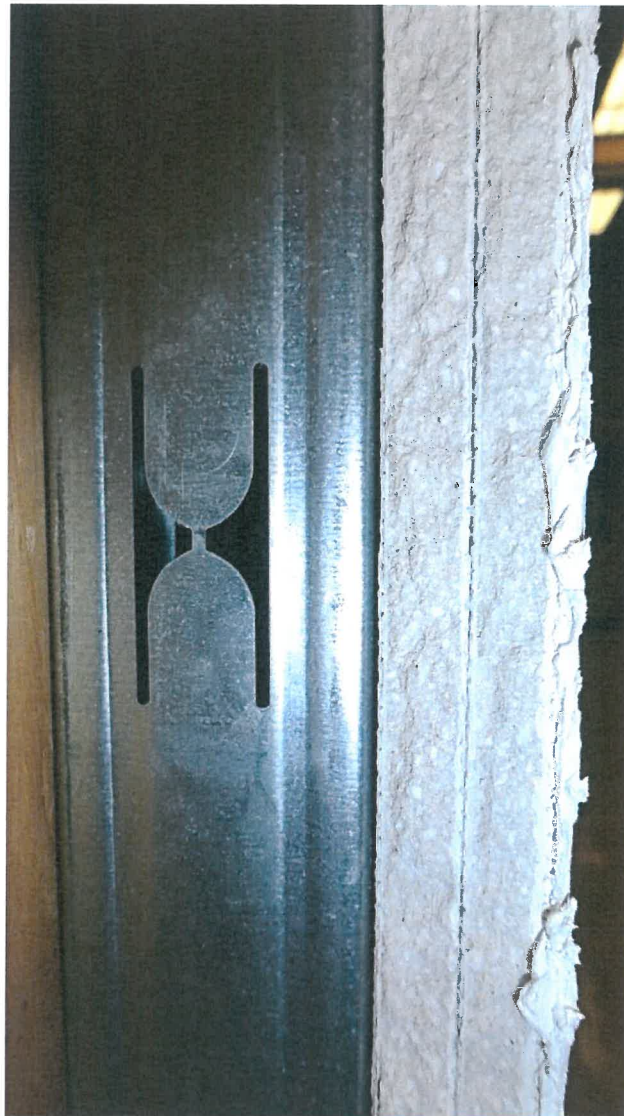


Figure 2:
Detail: substructure
Wall system "W382.de with AQUAPANEL Cement Board Indoor (Lighter.Easier.Faster)"



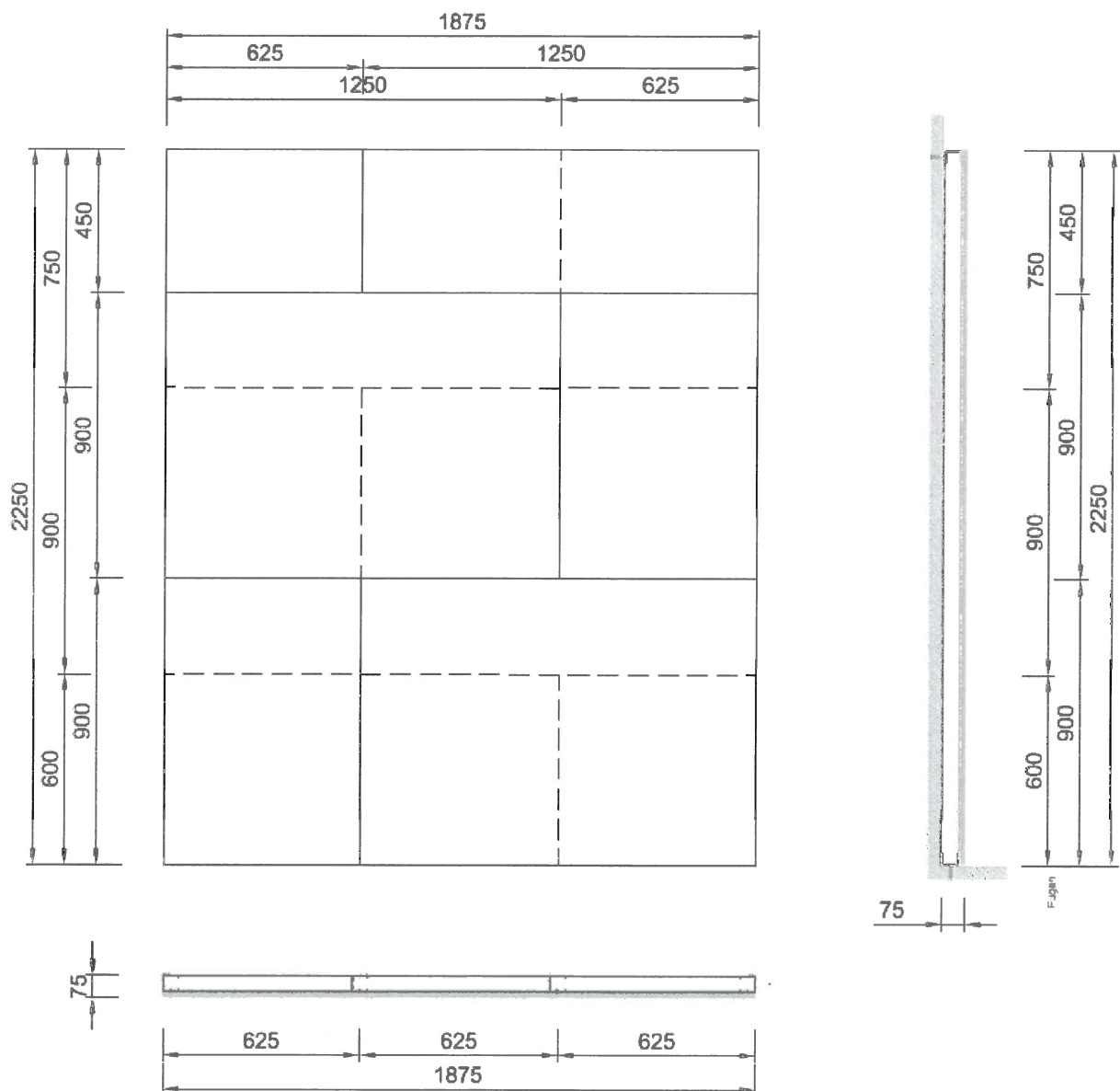


Figure 3:
Design drawing of the wall system
“W382.de with AQUAPANEL Cement Board Indoor (Lighter.Easier.Faster)”





Universität Stuttgart



Materialprüfungsanstalt Universität Stuttgart · Postfach 801140 · 70511 Stuttgart

Knauf Aquapanel GmbH & Co. KG
Kipperstraße 19
44147 Dortmund

Testing of safety against ball throwing according to DIN 18 032, Part 3
Impact resistance test according to EN 13 964, Annex D

Dear Ladies and Gentlemen,

Due to your insurance of 10-23-2018, to produce and distribute your installation elements unchanged, we extend the validity of the test reports:

903 1925 000-1/Man/Sgm vom 10.10.2016 bis 10.10.2020

903 1925 000-2/Man/Sgm vom 10.10.2016 bis 10.10.2020

The prerequisite for this is that you basically allow us to inform us about the production of the above-mentioned installation elements.

After expiry of this period, a review of the installation elements must be made in our house.

Best regards

Materialprüfungsanstalt Universität Stuttgart

Manske
Sachbearbeiterin

Kontakt

Britt Manske

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your reference: Beatriz Ania

Your message of: 10-23-2018

our reference: Man

Stuttgart, the 10-23-2018

Please send your correspondence stating our file number to the Materials Testing Institute and not to individual employees.

Bank
BW-Bank Stuttgart / LBBW

IBAN
DE51 6005 0101 7871 5216 87

SWIFT/BIC
SOLADESTXXX

Umsatzsteuer-ID
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Test Report

Testing of safety against ball throwing

Report-No.: 903 1925 000-1/Man/Sgm

Client: Knauf Aquapanel GmbH & Co. KG.
Kipperstraße 19
44147 Dortmund

Order-No. (Client): -

Order-No. (MPA): 903 1925 000

Test Item: **Ceiling system**
„D282.de with AQUAPANEL Cement Board Indoor
(Lighter.Easier.Faster.)“

Specification Applied

- [1] DIN 18032-3:1997-04
Sports halls – Halls for gymnastics, games and
multi-purpose use-Part 3: testing of safety against ball throwing
- [2] DIN EN 13964:2014-08
Suspended ceilings - Requirements and test methods

Date of Receipt of Test item 2016-09-12

Date of Test: 2016-09-16

Date of Report: 2016-10-10

Page 1 of 3 text pages

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1 Purpose of Investigation

With writing of 2016-05-09 you ordered the Materials Testing Institute University of Stuttgart with testing of the safety against ball throwing on a ceiling system according to DIN 18032-3 [1], as well as testing of impact-resistance according to DIN EN 13964 [2], annex D.

2 Tests and Analyses Performed

2.1 Description of the element tested

The element tested was the ceiling system

„D282.de with AQUAPANEL Cement Board Indoor (Lighter.Easier.Faster.)“

The ceiling system tested had the dimensions 1875 mm x 2250 mm.

The mineral building boards (AQUAPANEL Cement Board Indoor,Lighter.Easier.Faster.) were made of Portland cement and aggregates and had the dimensions of 1250 mm x 900 mm x 12,5 mm and were reinforced on both sides with a glass-fiber mesh. The boards had a mass per unit area of 11 kg/m² and an oven dry density of 750 kg/m³.

These boards were fixed to the metal lathwork (CD-profiles 60/27/06) all 220 mm with AQUAPANEL Maxi screws (SN 25). The metal lathwork was fixed to the metal substructure in an distance of 312,5 mm by means of cross connectors. The center to center distance of the substructure was 1000 mm.

The boards were assembled with an offset of the joints and full faced with AQUAPANEL Joint Filler & Skim Coating – white. The joints were filled with AQUAPANEL Joint Filler & Skim Coating – white and reinforced with AQUAPANEL Tape (10 cm wide).

The ceiling system was suspended by means of nonious hangers with grid dimensions of 1000 mm x 750 mm.

2.2 Execution of the tests and analyses

The test was performed according to DIN 18032-3 [1] and according to DIN EN 13964 [2], Annex D (accredited test methods according to DIN EN ISO / IEC 17025, see DAkkS-certificate D-PL-11027-04-07).

The tests were performed in a laboratory at room temperature.

3 Results of Investigation

Table 1: Results of determination of safety against ball throwing according to DIN 18 032-3 [1] on the ceiling system „D282.de with AQUAPANEL Cement Board Indoor (Lighter.Easier.Faster.)“

Ball	Impact angle in degree	Number of tests	Deterioration of test item
Handball	90	12	none
Handball	60	12	
Handball	60	12	

The tested element passed the test without damaging.

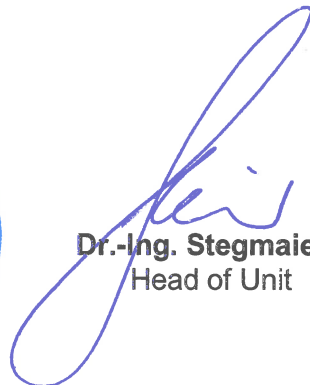
Therefore the element can be evaluated as safe against ball throwing according to DIN 18032-3 [1] as well as impact-resistant according to DIN EN 13964 [2], Annex D, for the Class 1A (impact speed $16,5 \pm 0,8$ m/s).

This document is valid till 2018-10-10

If the manufacturer proves and the testing institute confirms that the element tested is furthermore produced and installed without changes of relevant parts of the construction, the retest at the date mentioned is not necessary.


Manske
Testing Engineer




Dr.-Ing. Stegmaier
Head of Unit

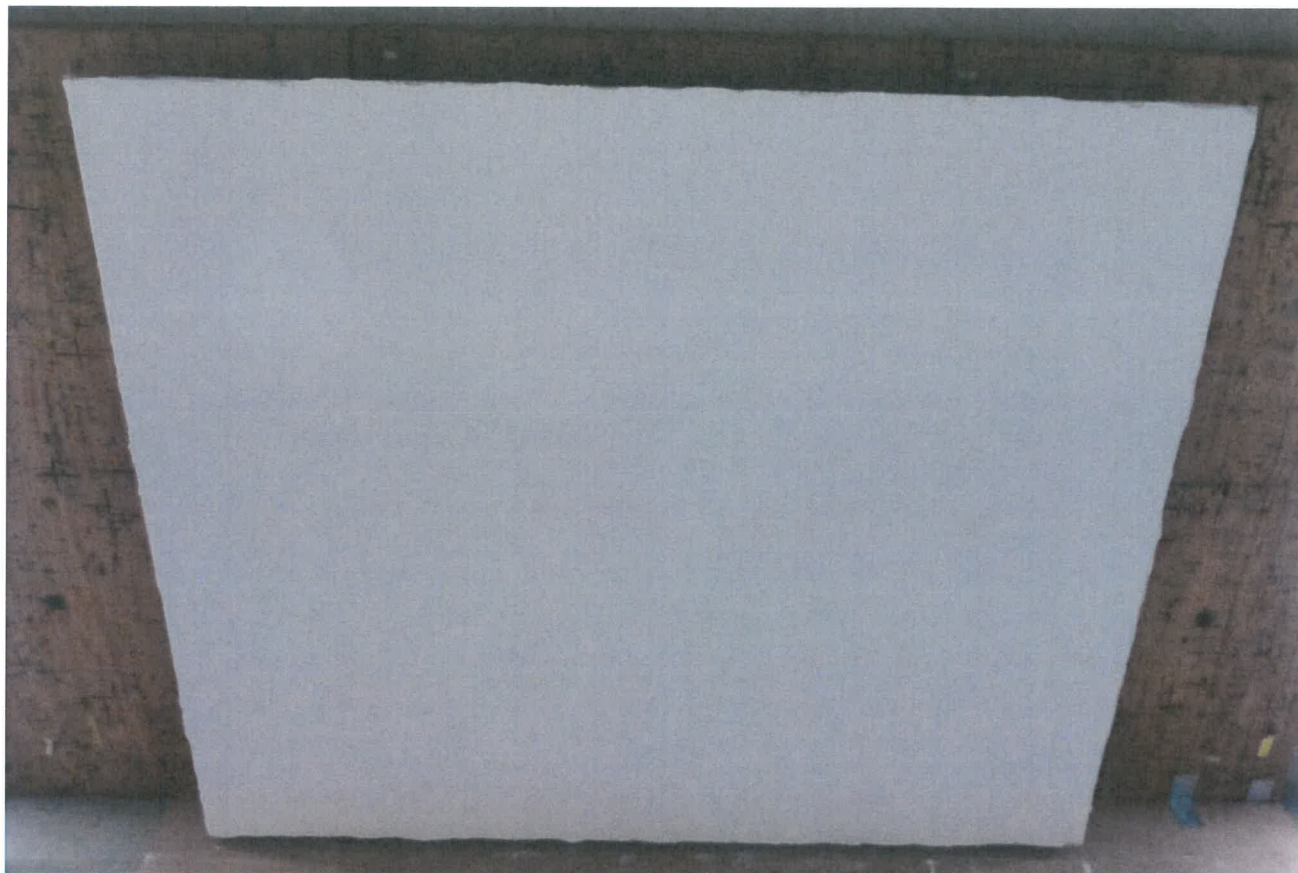


Figure 1:
Total view: visible face
Ceiling system "D282.de with AQUAPANEL Cement Board Indoor (Lighter.Easier.Faster.)"





Figure 2:
Detail: suspension of the ceiling system
"D282.de with AQUAPANEL Cement Board Indoor (Lighter.Easier.Faster.)"



Figure 3:
Detail: Nonious hanger
Ceiling system "D282.de with AQUAPANEL Cement Board Indoor (Lighter.Easier.Faster.)"



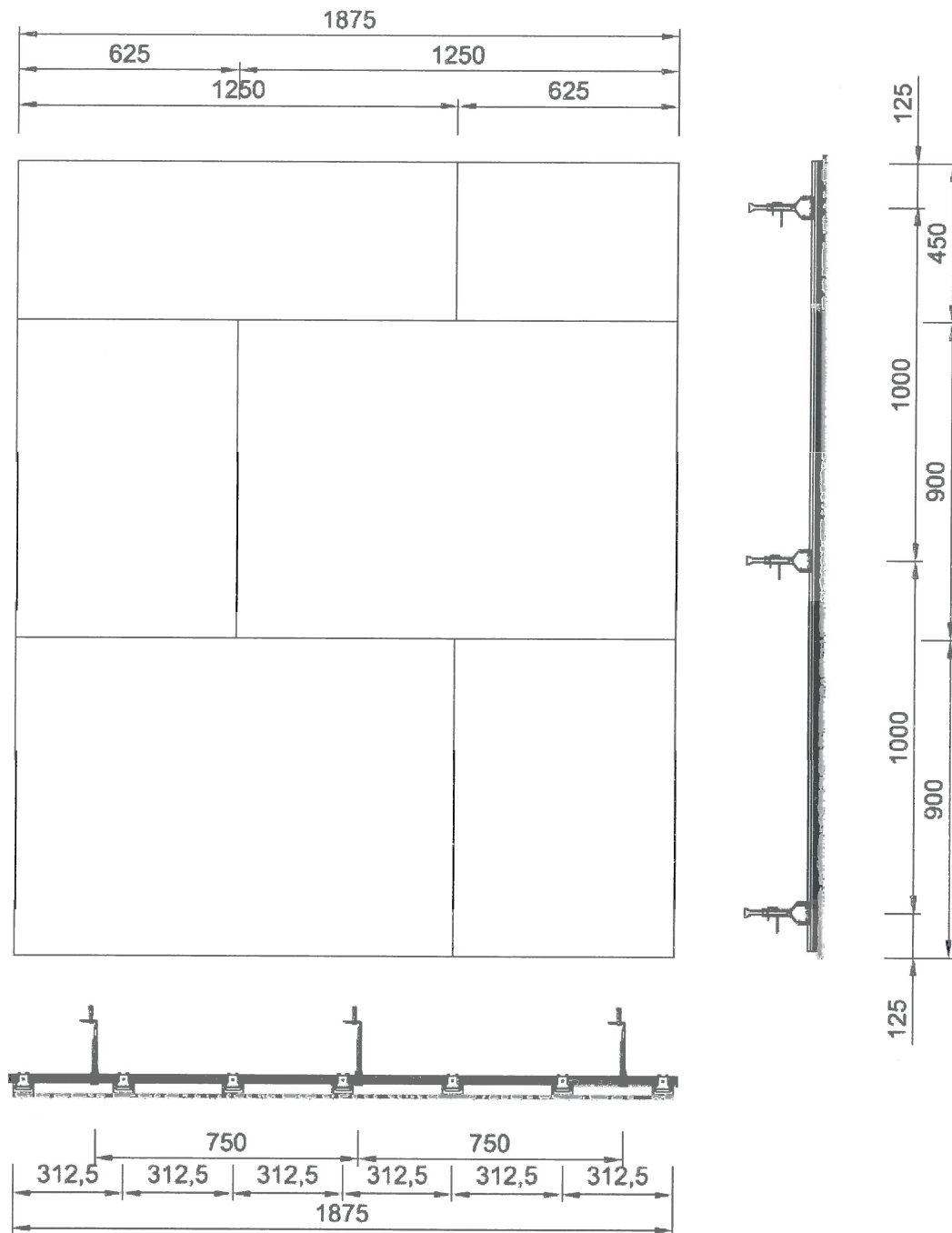


Figure 4:
Design drawing of the ceiling system
“D282.de with AQUAPANEL Cement Board Indoor (Lighter.Easier.Faster.)”

