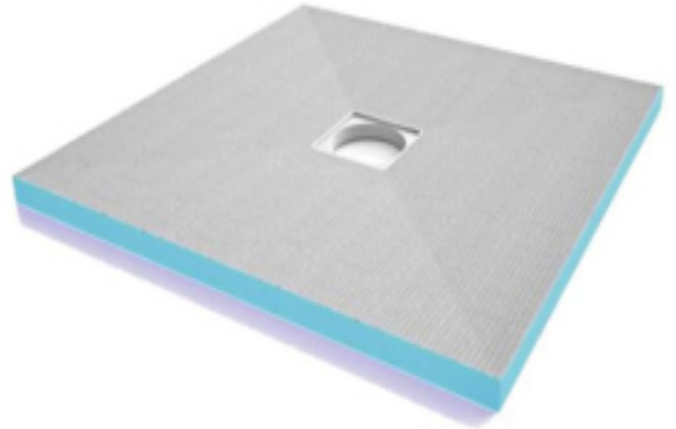




**TANZ Appraised**  
Product and System Appraisal  
Appraisal # 12123  
Date of issue 24/11/2021  
Date of expiration 24/11/2023



## MJ2

### Shield Shower Tray Board

Appraisal No. 12123

Version 001

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## Appraised Product

### MJ2 Shield Tray

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1.1 The "Shield – shower tray board" can be utilised in conjunction with other waterproofing products, however those products are outside of the scope of this appraisal.

The Shield - shower tray board is made from extruded polystyrene (XPS) which is contained by fibreglass mesh and polymer mortar. The Shield - shower tray board is manufactured in various sizes and shapes and sheet thickness. The scope of this appraisal is for use in internal wet area applications. Refer to the MJ2 Group supplied information for further product use and application.

## Scope of this Appraisal

2.1 TANZ have appraised the “Shield - shower tray board” product, which is distributed in NZ by the MJ2 Group, as being acceptable for use in Wet Area applications that meet the requirements of E3 Internal Moisture of the NZBC. The product is for use as a preformed or individually sized shower tray substrate material for use over acceptable floor substrates in pre-application before the installation of an under-tile internal wet area membrane and tile installation system. It is used to create fall to drainage outlets, channels in shower areas for use in Internal Wet Areas of buildings. The “Shield - shower tray board” has been appraised in conjunction with the Litokol Litoproof Extreme waterproof membrane system and the Litokol Aquamaster EVO membrane system and when designed and installed in conjunction with the following Litokol products, they form the Litokol “system for waterproofing of bathrooms and showers with flexible sheets and the “system for waterproofing bathrooms and showers with single component liquid membrane” Refer to TANZ appraisal #12121 and TANZ appraisal #12122.

- Litoband Koll 1K
- Litoband Tape
- Litoband S.A.T
- Litoband SK self-adhesive drain collars
- Litoband SK pipe collars
- Litokol tile adhesives in the class of C2/S2
- Stylegrout range of products supplied by Litokol
- Ottoseal S70

## Scope of Product

- 3.1 The Shield - shower tray board, has been appraised by TANZ as an acceptable solution for E3 Internal Moisture of E3 Internal Moisture for use under a wet area waterproofing membrane, within the following scope:
- 3.2 Over floor substrates of concrete, plywood, compressed fibre cement sheet and fibre cement sheet tile underlay.
- 3.3 On Cement self-levelling floor compound product such as Litoliv S40 ECO, Litoliv Express, Litoliv Extra 15.
- 3.4 When a finished surface of ceramic or stone tile is installed above the membrane.
- 3.5 When the floor substrate structure has been designed and constructed to ensure that deflections in the substrate do not exceed 1/360th of the span of the building elements used to construct the substrate.
- 3.6 When designed and constructed in accordance with the "TANZ Wet Area Waterproof Membrane and Tile System Installation" methodology.
- 3.7 When movement and control joints in the substrate are carried through the membrane and tile or stone finish surface.
- 3.8 When installed by accredited applicators of the Litokol Litoproof Extreme membrane product type, or Accredited applicators.

## Product Limitations

- 4.1 When designed and constructed outside of the "TANZ Wet Area Waterproof Membrane and Tile System Installation" methodology.
- 4.2 Tile and Stone finishes are outside of the scope of this product appraisal.
- 4.3 Applications for use in exterior applications have not been assessed in this product appraisal.

## Building Code Compliance (NZBC)

- 5.1 It is the opinion of TANZ Inc, that the Litokol Litoproof Extreme, flexible sheet, waterproof membrane product when designed and installed in accordance with the information and conditions of this appraisal will meet the following provisions of the NZBC:
  - B2 Durability: Performance B2.3.1 (b) and B2.3.2

- E3 Internal Moisture: Performance E3.3.2 to E3.3.6
- F2 Hazardous Building Materials Performance F2.3.1

5.2 It is the opinion of TANZ Inc, that the Shield- shower tray board product, when designed and installed in accordance with the information and conditions of this appraisal, will conform to the following AS/NZS standards, nominated Acceptable solution for E3 Internal Moistures of the NZBC and the Code of Practice for Internal Wet Area Membranes information as at the date of publication.

- AS- 3740: 2010 - Waterproofing of domestic wet areas
- AS/NZS 4858: 2004 – Wet-area membranes
- E3/AS2 Internal Wet-area Membrane Systems - Membranes installed in accordance with sections 1–4 of the IWAM Code of Practice (as modified by the Acceptable Solution) will comply with Building Code clauses E3.3.2 – E3.3.6.
- Internal Wet Area Membranes (IWAM) code of practice 4th edition

## Durability

6.1 Shield - shower tray board Shower Base, when exposed to normal conditions of the environment and subjected use, are intended to have a minimum life period of 15 years and be compatible with ceramic and stone tile finishes that have a serviceable life of between 15 to 25 years.

## Maintenance

7.1 When designed and installed correctly, no maintenance of the Shield Shower Tray is required or is achievable.

7.2 A regular check of the finished surfaces must be made to ensure it remains fully adhered to the substrate. Any cracks or damage that may occur must be repaired by a professional tradesperson immediately.

## Litoproof Extreme – Product Technical Information

- 8.1 **Litoband SK** self-adhesive drain collars – A self-adhesive butyl rubber compound integrated with two layers of non-woven polypropylene used to seal into a floor drain outlet. Refer to Litokol TDS information n.616 dated January 2021 for correct installation methods.
- 8.2 **Litoband SK** pipe collars – A thermoplastic elastomeric fabric coupled with two layers of non-woven polypropylene used for sealing wall and floor pipe penetrations. Refer to Litokol TDS information n.614 dated January 2021 for correct installation methods.
- 8.3 **Litoband S.A.T** - is a sealing tape in butyl rubber coupled with non-woven alkali-resistant polypropylene, used for sealing of junctions between horizontal and vertical surfaces.
- 8.4 **Litoband SK Corner IC-EC** - A thermoplastic elastomeric fabric coupled with two layers of non-woven polypropylene used for sealing internal and external corners. Refer to Litokol TDS information for this item.
- 8.5 **Litoband Tape** – A double layer of polyester fabric in butyl rubber centre, used for sealing of junctions between horizontal and vertical surfaces. Refer to Litokol TDS information n.611 dated January 2021 for correct installation methods.
- 8.6 **Litoband Koll 1K** – An adhesive component used to adhere Litoband tape. Refer to Litokol TDS information n.617 dated January 2012 for correct installation methods.
- 8.7 **Litoproof Extreme** – A sheet membrane that is, consisting of two outer layers of non-woven polypropylene that are heat sealed to an inner layer of polyethylene. It is available as a 1.0m wide by 10m or 30m long roll and has a white appearance.

## Handling and Storage

- 9.1 All materials must be stored inside in a dry, frost-free environment out of direct sunlight. Materials must be stored up off concrete floors and cannot be exposed to freezing conditions. Handling of the materials on site is the responsibility of the applicator.

## Shield – Shower Tray Board - Technical Literature

- 10.1 The Shield Catalogue E - shower tray board technical literature supplied by the Hangzhau Shield Energy Saving Insulation materials company must be read in conjunction with this appraisal.
- 10.2 All aspects of the appraisal information pertaining to the scope, design, installation, and maintenance, must be followed.
- 10.3 Accompanying technical literature supporting this appraisal has been used in the assessment of the Shield - shower tray board product.

## Design Information

### General

- 11.1 It is for use in buildings where an impervious waterproof membrane is required to floor and wall wet areas as defined in E3/AS2 to prevent damage to building elements and adjoining structures.
- 11.2 Sections 1-4 of the Internal Wet Area Membranes (IWAM) code of practice must be utilised in the design of internal wet areas that utilise the Shield - shower tray board product.
- 11.3 The “TANZ Wet Area Waterproof Membrane and Tile System Installation” design information must be utilised in the design of internal wet areas that utilise the Shield - shower tray board product.
- 11.4 Consideration must be made in the design to ensure that all aspects of E3/AS2 are met. Products that are not nominated in this document are outside the scope of this appraisal. No substitutions to any element of this appraisal is permitted.
- 11.5 The design must ensure that the shower mixer and tap penetrations are sealed correctly. Refer to:
  - E3/AS2 4.3.5 see figure 9 page 56
  - E3/AS2 4.4.6
  - IWAM code of practice 4th edition
  - TANZ Wet Area Waterproof Membrane and Tile System Installation Design Methodology
  - Aquatite Wetwall Caddy product and installation information and details.

11.6 Consideration must be made in the design to allow for the installation of the correct waterstop products. Refer to:

- TANZ - N.T Waterstop details
- E3/AS2 4.5.1 Water-stops (refer to amended details)
- E3/AS2 4.5.4 shower Area to adjacent floor
- E3/AS2 4.3.2 General Design Principals for Shower Areas
- IWAM code of practice 4th edition
- TANZ Wet Area Waterproof Membrane and Tile System Installation Design Methodology.

11.7 Movement and control joints may be required to satisfy the design requirements of a projects size and shape and the stone or tile finished surface.

11.8 The installed membrane must be protected prior to and during installation of a stone or tile finished surface.

11.9 Timber framed systems must comply with:

- NZS 3604.

11.10 When a specific engineered design (SED) has been utilised, the framing elements must be at least the equivalent stiffness to the framing provisions, outlined in:

- NZS 3604 or comply with the serviceability scope of
- AS/NZS 1170.

11.11 In all substrates uses, structural framing must be provided so that the maximum span of the substrate meets all requirements of the substrate manufacturers technical information.

11.12 All sheet edges of the substrate must be fully supported, unless stated otherwise in the manufacturers technical and installation information and the provided test data to support a claim is available to view and complies to an appropriate standard or verification method.

11.13 The timber framed systems that support the substrate must be constructed to prevent deflection in the substrate from exceeding 1/360th of the span.

11.14 Where NZS 3604 has been utilised, the allowable joist spans that are nominated in Table 7.1 shall be reduced by 20%

## Substrates

### Concrete and Masonry

12.1 All concrete and masonry substrates must be to specific engineering design (SED) meeting the requirements of the NZBC and the following NZS requirements:

- NZS 3101 Concrete Structures Standard
- NZS 3604 must meet concrete slab on ground requirements (or)
- NZS 4229 Concrete masonry buildings not requiring specific engineering design
- NZS 4230 Design of reinforced concrete masonry structures

### Plywood

12.2 Plywood must be a minimum of 17mm thick and comply with

- AS/NZS 2269 Plywood-structural

12.3 CD grade structural with the sanded C face installed upwards.

12.4 Treated H3 CCA treated.

12.5 LOSP treated plywood must not be used.

12.6 Plywood substrates must be supported with nogs/dwangs or framing with a maximum span of 400mm in each direction.

12.7 Fixed with 10g x 50mm stainless steel countersunk head screws, fixed at 150mm centres along the sheet edges and 200mm centres through the body of the sheet.



## Fibre Cement Compressed Sheet and Fibre Cement Sheet Tile and Slate Underlay

12.8 All fibre cement sheet products must be manufactured to the requirements of:

- AS/NZS 2908.2 Cellulose-Cement Products-Part 2: Flat sheets type B cat 3+

12.9 Must be specified by the manufacturer as being fit for purpose for wet area membrane substrates.

12.10 Installation must be carried out in accordance with the supplied manufacturers installation and product technical information and all test data confirming suitability for the intended use of the product.

12.11 Membrane installation must not proceed where the substrate surface temperature is below 10<sup>0</sup> C or above 35<sup>0</sup>C.

### Particle Board

12.12 Particle board must not be used as a new substrate in any wet area refer to:

- IWAM code of practice page 41.

12.13 For existing particle board substrates refer to:

- E3/AS2 4.1.3
- Page 41 of the IWAM code of practice 4th edition

## Internal Moisture

13.1 The Shield shower tray board product has been independently tested (Istituto Giordano statement number 55393/1725C) and is deemed to meet the following test requirements.

Table 1

| Property                              | Assessed to  | Rating                   |
|---------------------------------------|--------------|--------------------------|
| Thermal Conductivity (> 5yrs)         | BS EN 13164  | 0.030 - 0.036 Watt/mK    |
| Compressive Strength (10% deflection) | EN 826       | ≥300kpa                  |
| Bond Strength                         | AS/NZS 2588  | 401N                     |
| Maximum Tile Loading Weight           | CERAM121107  | 62kg/m2                  |
| Flexural Strength                     | ASTM C203    | 2.05 ± 0.02 Mpa          |
| Water Vapour Permeability (Sd)        | DIN EN 12086 | 1.5m                     |
| Resistance to body Impact             | ETAG003      | 3 x 120N/m               |
| Bending Stiffness, EI (20mm / 30mm)   | EN 12089     | 285kNm2/mm / 399 kNm2/mm |
| Working temperature range             | N/A          | -50°C to +80°C           |

13.2 The means of demonstrating compliance to NZBC clause E3 Internal Moisture for this appraisal is given as:

- E3/AS2 Internal Wet-area Membrane Systems - Membranes installed in accordance with sections 1–4 of the IWAM Code of Practice (as modified by the Acceptable solution for E3 Internal Moisture) will comply with Building Code clauses:
  - E3.3.2 – E3.3.6.
  - AS- 3740: 2010 - Waterproofing of domestic wet areas
  - AS/NZS 4858: 2004 – Wet-area membranes
  - Internal Wet Area Membranes (IWAM) code of practice 4th edition
  - TANZ Wet Area Waterproof Membrane and Tile System Installation Design Methodology

- 13.3 When designed and installed to the Litokol "system for waterproofing of bathrooms and showers with flexible sheets and the "system for waterproofing bathrooms and showers with single component liquid membrane - Refer to TANZ appraisal #12121 and TANZ appraisal #12122 and to the requirements of this appraisal, the Shield- shower tray board product, will prevent the passage of moisture from penetrating behind floor and wall linings or entering concealed spaces.
- 13.4 All surfaces of the membrane must have a finished surface of ceramic or stone tile.
- 13.5 Falls in showers and shower areas must be at a minimum of 1 in 50 or 1.15 degrees.
- 13.6 For level entry, wet area designed showers and bathrooms, the fall must extend out a minimum of 1500mm from the position of the shower rose outlet.
- 13.7 There must be positive fall directed towards the drainage outlet.
- 13.8 Where impervious wall finishes are used such as an acrylic liner, they must overlap the waterproof membrane by a minimum of 50mm.
- 13.9 All penetrations must be sealed by the requirements set out in E3/AS2
- 13.10 For level entry wet area designed showers and bathrooms, the fall must extend out a minimum of 1500mm from the position of the shower rose outlet.
- 13.11 There must be positive fall directed towards the drainage outlet.
- 13.12 Where impervious wall finishes are used such as an acrylic liner, they must overlap the waterproof membrane by a minimum of 50mm.
- 13.13 All penetrations must be sealed by the requirements set out in E3/AS2

## General Installation Information

### Skill Level Requirement

- 14.1 The installation of the framing and substrate must be completed by, or under the supervision of a Licenced Building Practitioner (LBP) with the relevant Licence class and in accordance with information contained inside this appraisal and the manufacturers supplied technical information.

14.2 The installation of the Shield-shower tray board product and the Litokol, Litoproof Extreme flexible sheet membrane system or the Litokol Aquamaster EVO membrane system, must be performed by approved applicators who have completed the required product training of the membrane type, have a good knowledge of the product technical information, and can demonstrate good waterproofing practices.

## Substrate Preparation

### General

- 15.1 All installed substrate types must be dry, free of dust/dirt and any grease/oils and detritus.
- 15.2 Are installed to the requirements of this appraisal and to the manufacturers supplied information.
- 15.3 Substrate surfaces must be even in plane and be free from nibs and sharp edges and concrete formwork release agents.
- 15.4 Wall substrates must be flat and true over a 4.0m straight edge placed in any direction of the wall area.
- 15.5 The relative humidity of the concrete substrates must be 75% or less before the application of the Shield- shower tray board.
- 15.6 All voids, cracks, holes, rough areas must be filled with an appropriate type of material that is compatible with the installed substrate type. Refer to Litokol TDS n.609 dated January 2021 or the other supplied information of membrane type that has been specified.
- 15.7 All joints, junctions of substrate intersections at wall to floor and wall to wall areas are prepared, primed, and have the appropriate Litoproof Extreme, waterproof membrane accessories installed to the Shield- shower tray board, technical information requirements.
- 15.8 All floor drainage and wall shower mixer and tap penetrations have been prepared and installed correctly to meet the requirements of E3/AS2 – clauses 4.3.3 and 4.3.5

- 15.9 All falls meet the requirements as set out in this appraisal.
- 15.10 All drainage outlets are installed correctly and have positive fall directed towards them.

## Use of Primer

- 15.11 Smooth and compact substrates such as existing ceramic or agglomerate coverings, must be properly degreased with specific detergents such as Litoscrub EVO
- 15.12 In the case of anhydrite screeds, check for the presence of a suitable vapour barrier to prevent rising damp.
- 15.13 Use a carbide method hygrometer to check that the residual humidity is less than 0.5%.
- 15.14 The surface must be sanded and treated with Primer C
- 15.15 Any cracks must be repaired with Multifondo EVO, sprinkling the fresh surface with sand or dried quartz with granulometry 0.4-1 mm.
- 15.16 All Litokol, MJ2 Group and Shield- shower tray board respective technical data sheets must be consulted for correct use of the indicated products.
- 15.17 In the case of cementitious substrates that produce surface dust, these must be treated beforehand with the ready to-use consolidating primer in aqueous dispersion, Primer C. Refer to Litokol TDS information sheet N.515 dated January 2021.
- 15.18 The relative humidity of the concrete substrates must be 75% or less before the application of the Litokol Litoproof Extreme, flexible sheet, waterproof membrane or the Litokol Aquamaster EVO single component liquid membrane.
- 15.19 All voids, cracks, holes, rough areas must be filled with an appropriate type of material that is compatible with the installed substrate type. Refer to Litokol TDS n.609 dated January 2021.

## Shield-shower tray board product Installation



**Image 1** - Measure the center of the waste area for waste cut out, cut base and then trial fit

**Image 2** - Apply thin-set adhesive to the floor substrate, with an 8mm notch trowel with adhesive lines running in one direction

**Image 3** - Apply thin-set adhesive with to the back of the shower base with an 8mm notch trowel in the same direction as the floor adhesive

**Image 4** - Install shower base into the wet adhesive, making sure that there are no voids or air pockets under the base.

**Image 5** - Clean any excess adhesive from the base edges, make sure that the leak control flange is rebated into the surface of the shower base so that no ridges exist between base and leak control flange. Smooth and compact substrates such as existing ceramic or agglomerate coverings, must be properly degreased with specific detergents such as Litoscrub EVO

## Basis of the Appraisal

16.1 The following information supplied by the MJ2 Group has been reviewed by TANZ and the test data results, form the basis of this appraisal for the product “Shield- shower tray board”

16.2 The following information has been utilised by TANZ to determine compliance to the NZBC and the relevant Acceptable Solutions of E3 Internal Moisture as outlined in this appraisal. See clause 11.2

16.3 A review of the A shield board Test results independently conducted on behalf of the Hangzhau Shield Energy Saving Insulation Materials Company, has been undertaken by TANZ and found to be satisfactory to comply with the assessed methods as outlined in table 1 of this appraisal.

16.4 A review of the Shield- shower tray board technical information, installation methods and scope of use, has been undertaken by TANZ and found to be satisfactory to comply with

- AS 3740: 2010 Waterproofing of domestic wet areas
- E3/AS2
- B2 Durability

16.5 It is the opinion of TANZ that the when the Shield-shower tray board product is used, designed, installed, and maintained to the extent of this appraisal information, it is deemed fit for purpose as an acceptable solution for E3 Internal Moisture for use in an under-tile waterproof membrane system.

16.6 It is the opinion of TANZ that the when the Shield-shower tray board product is used, designed, installed, and maintained to the extent of this appraisal information, and used in conjunction with the information outlined in clause 7.1 to 7.6 of this appraisal, is deemed fit for purpose as an acceptable solution for E3 Internal Moisture for use in a tile installation System”.

## Further Investigations

17.1 Conformation of achieved quality certification information can be found for the Hangzhau Shield Energy Saving Insulation Materials Company on [www.hzshield.cn](http://www.hzshield.cn)

## Limitations of the Appraisal

The above appraisal is to be read in conjunction with the Litokol TDS.

The products described in the appraisal are limited to the use for Internal Waterproofing and wet area application in accordance with E3 and B2 of the NZBC

The Litokol products are deemed fit for purpose as waterproof membrane products for wet area use in the New Zealand construction industry and all substrates must meet the relevant NZBC requirements to perform as an acceptable waterproofing barrier.

All information presented to TANZ to produce the following document has been provided by Litokol ITALY and is relied upon as accurate.

All test information from TCNA laboratories with test results have been relied upon by TANZ as being accurate.

TANZ has provided the above appraisal in accordance with ISO9001 requirements for an appraisal of product/system.

The performance of the above products listed in this appraisal is reliant on the product performing in the same way or like manner as the tested product samples and the products being installed strictly as per the required installation process.



Litokol NZ warrants that all products used within the “system” will perform as required for the specified time frame as per the NZBC when installed as per the Litokol TDS.

TANZ offers no guarantee or warranty within this appraisal on behalf of the manufacturer, supplier, installer, or third party of the product/products or system.

TANZ does not act as an agent Litokol ITALY or Litokol NZ.

This appraisal must be read in its entirety, in conjunction with the Litokol TDS and must not be partly duplicated and used in any other documentation.

Litokol agrees to the TANZ Terms and conditions for appraisal responsibilities.