

SINTEF Building and Infrastructure confirms that

Bathsystem Superlight Bathroom Pod

has been found to be fit for use in Norway and to meet the provisions regarding product documentation given in the regulation relating to the marketing of products for construction works (DOK) and regulations on technical requirements for building works (TEK), with the properties, fields of application and conditions for use as stated in this document

1. Holder of the approval

Bathsystem S.p.A.
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25010 Calcinato (BS)
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2. Product description

General

Bathsystem Ultralight Bathroom Pod is a system of prefabricated bathroom modules to be placed in a building structure as separate units. The bathroom modules are waterproof and have ceramic tiles on floor and walls. They are equipped with sanitary installations and piping installed, ready for connection to the water and drainage systems (see Fig. 1 and 2). The modules are produced in different sizes and with sanitary equipment customized to the individual building project. A 5 m² bathroom module weights approx. 1500 kg.

Table 1 show product specifications for the most important components and materials incorporated in the modules. A detailed description of the module construction is filed in "Standard construction details for Bathsystem prefabricated bathroom modules relating to SINTEF Technical Approval No. 20374". This collection of construction details constitutes a formal part of the approval, and the updated version filed at SINTEF Building and Infrastructure applies.

Floor

The floor is a reinforced concrete slab with a liquid waterproofing membrane applied and ceramic tiles on top, as illustrated in fig. 3. The bathroom modules may be equipped with electric heating cables or pipes for hot water system for floor heating.

The floor has a slope of min. 1:100. The shower area has a slope of min. 1:50. The height difference from the gully grate and the floor waterproofing membrane at the door opening is min. 25 mm.



Fig. 1
Internal view; Bathsystem Superlight Bathroom Pod.

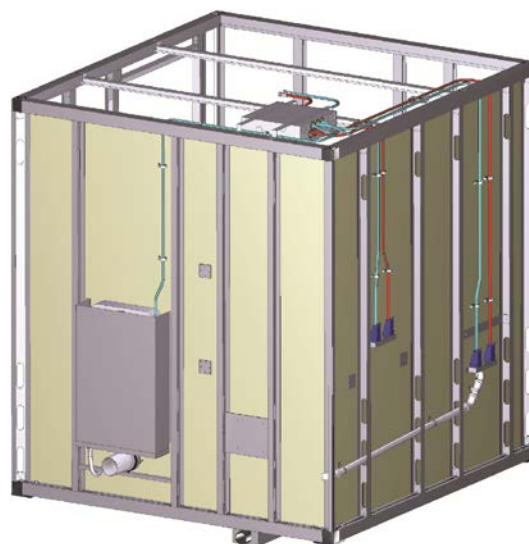


Fig. 2
External view; Bathsystem Superlight Bathroom Pod.

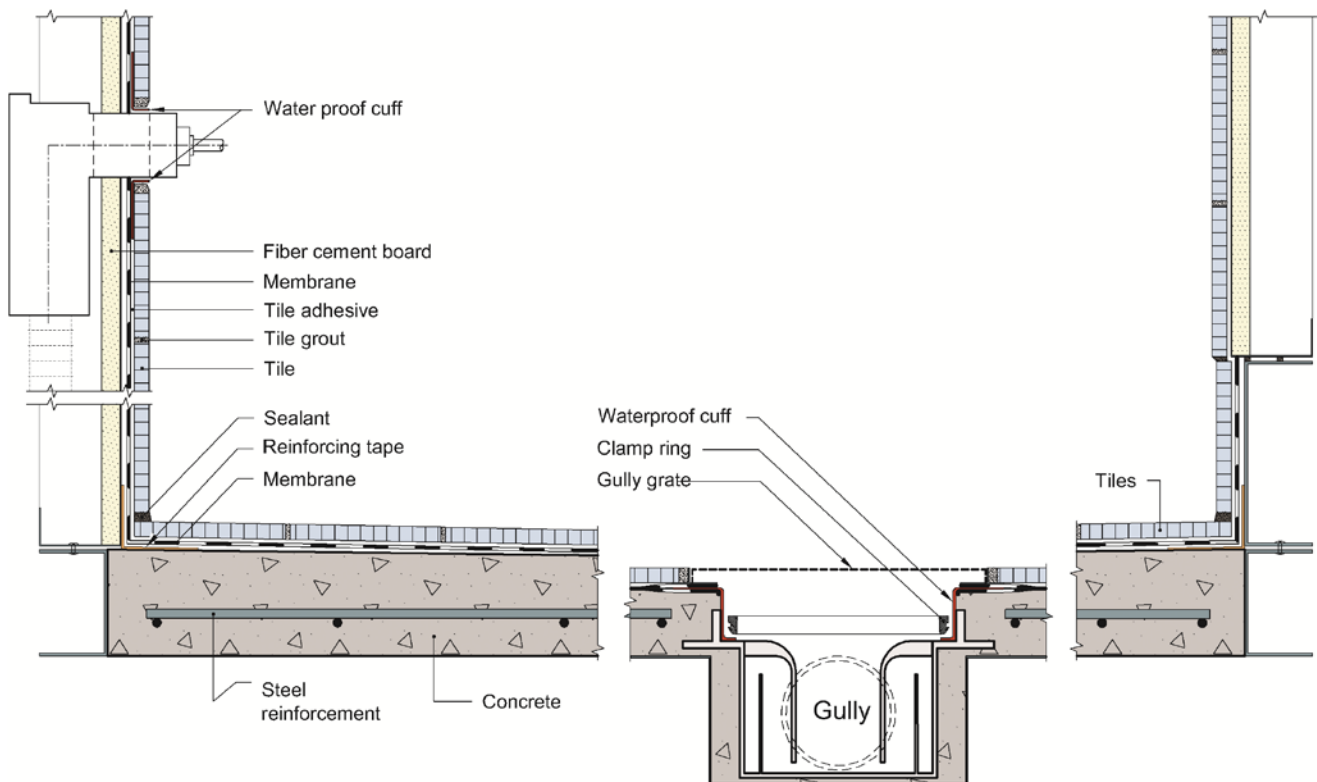


Fig. 3 Floor and wall cross section

Table 1
Product specification

Component	Specification
Concrete	LC 16/18, En 206:2013
Reinforcement in floor	Reinforcing mesh, 2,83 cm ² /m
Floor steel frame	2 mm steel profiles
Wall and ceiling steel profile studs	1,2 mm steel profiles
Wall and ceiling boards	Fermacell fiber gypsum boards, 15 mm
Waterproofing liquid membrane	Mapei, Mapegum WPS with related components. SINTEF Technical Approval No 2402
Tile adhesive for floor	Mapei Keraflex
Tile adhesive for walls	Mapei Ultralite Si
Mortar for grouting	Mapei Keracolor
Tiles on floor and wall	Tiles to EN 87 and EN 14411
Elastic sealant	Otto—Chemi, Novasil S100 or Mapei MApesil AC
Pipe-in-tube system	Uponor, SINTEF TG20013 or LK Universal, SINTEF TG 20312
Gully	Vieser Serres. Product certified according to EN 1253.
WC	Product certified according to EN 997 or NT VVS 120
Basin mixer and shower mixer	Product certified according to EN 200, EN 817 or EN 1111

Walls and ceiling

The walls consists of steel profile studs with 15 mm Fermacell fiber gypsum boards. The inside is covered with a waterproofing membrane system and ceramic tiles. The ceiling consists of painted 15 mm Fermacell fiber gypsum boards on steel profile studs.

Installations

Properties for all piping and sanitary fittings installed in the modules are documented by separate product certificates or approvals. Water supply is based on a pipe-in-tube system with a distribution box located in the module ceiling. All pipe penetrations in walls are sealed with appropriate water proofing parts.

3. Fields of application

The prefabricated bathroom modules are designed for use in private homes, hotels and other buildings with equivalent conditions for the use of wet rooms. The modules can be used in risk class 1-6 in fire class 1-3.

4. Properties

Load-carrying capacity

The floor structure is designed for an imposed load category A according to Norwegian Standard NS 3491-1, i.e. 2 kN/m².

Wall-mounted toilet has been tested with a 4.0 kN load according to EN 997, and wall-mounted washbasin has been tested with a 1.5 kN load according to ETAG 022 (Guideline for European Technical Approval of watertight covering kits for wet room floors and or walls), Annex E. Seat for disabled in the shower area has been tested with a 2,2 kN load. Handbar has been tested with 1,2 kN load.

Water tightness

The performance of Bathsystem prefabricated bathroom modules has been tested according to ETAG 022, Annex A and E, with satisfactory results.

Safety in case of fire

Ceramic tiles are classified Fire Class A1 according to NS-EN 13501-1.

Sound insulation

Sound insulation performance has not been determined.

Thermal insulation

The bathroom modules have no thermal insulation.

5. Environmental aspects*Substances hazardous to health and environment*

The product is regarded as not containing hazardous substances with priority in quantities that pose an increased risk for human health and environment. Chemicals with priority include CMR, PBT and vPvB substances.

Effect on indoor environment

The product is not regarded as emitting any particles, gases or radiation that have a perceptible impact on the indoor climate, or to have any significant impact on health.

Effect on drinking water

The product is evaluated to emit no substances to drinking water in amounts that can cause taste, smell or is dangerous to the health.

Waste treatment/recycling

The product shall be sorted as metal, concrete, residual waste or other appropriate waste fractions on the building/demolition site. The product shall be delivered to an authorized waste treatment plant for material recovery, energy recovery, disposal and/or treatment as hazardous waste.

Environmental declaration

No environmental declaration (EPD) has been worked out for the product.

6. Special conditions for use and installation*Foundation*

The bathroom modules must be installed on floors or foundations that are structurally designed for the weight of the module and its imposed load. The structure must be sufficiently rigid to prevent deformations that may cause insufficient slope towards the floor drain.

Availability

The bathroom modules, water closing valve included, must be designed and assembled in accordance with the requirements for the technical regulations under the Planning and Construction Act regarding accessibility for persons with impaired vision and mobility.

External sanitation systems

The building infrastructure design must be coordinated with the module design to ensure access to external sanitation systems (i.e. toilet cisterns) on the module outside for inspection, repair or replacement. Leakages from sanitary installations must be detected and not cause any unnecessary damage.

Electrical wiring

Bathroom modules delivered to Norway requires electrical installations in accordance with "Regulations for low voltage (FEL) with guidance, NEK 400".

Installation

The modules are placed on 6 mm thick rubber pads at the corners, and must be levelled accurately in order to ensure that the floor has correct slope to the drain.

Transport and storage

During transport and storage, the modules must be placed on an even, stable foundation, and protected by packaging to prevent effects of moisture on the outside of the modules.

7. Factory production control

The product is produced by Bathsystem S.p.A., Via Cavour n° 149. 25010 Calcinato (BS), Italy.

The holder of the approval is responsible for the factory production control in order to ensure that the product is produced in accordance with the preconditions applying to this approval.

The manufacturing of the product is subject to continuous surveillance of the factory production control in accordance with the contract regarding SINTEF Technical Approval.

The quality system in use by Bathsystem S.p.A. is certified by the Swiss Association for Quality and Management System SQS according to ISO 9001:20089, Certificate No. CH-35624.

8. Basis for the approval

The approval is based on a system assessment, documentation of the properties of subcomponents, and type testing of complete module documented in the following report:

- SINTEF Building and Infrastructure. Report SBF2016F0432. Test report Bathsystem Superlight Bathroom Pod, dated 10.01.2016.

9. Marking

The product is to be marked with producer name, product name and production date. The approval mark for Technical Approval No. 20374 shall be used, visible inside the module after installation, i.e. in the pipe-in-tube manifold cabinet.



Approval mark

10. Liability

The holder/manufacturer has sole product responsibility according to existing law. Claims resulting from the use of the product cannot be brought against SINTEF beyond the provisions of Norwegian Standard NS 8402

for SINTEF Building and Infrastructure



Marius Kvalvik
Approval Manager