

SINTEF 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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#### 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 m<sup>2</sup> 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

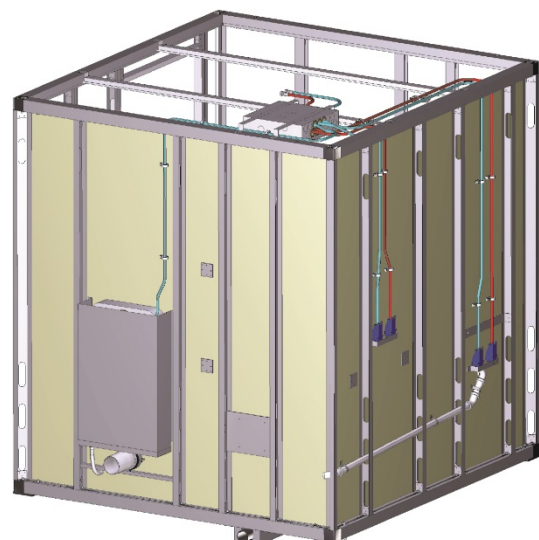


Fig. 2  
External view; Bathsystem Superlight Bathroom Pod

SINTEF is the Norwegian member of European Organisation for Technical Assessment, EOTA, and European Union of Agrément, UEAtc

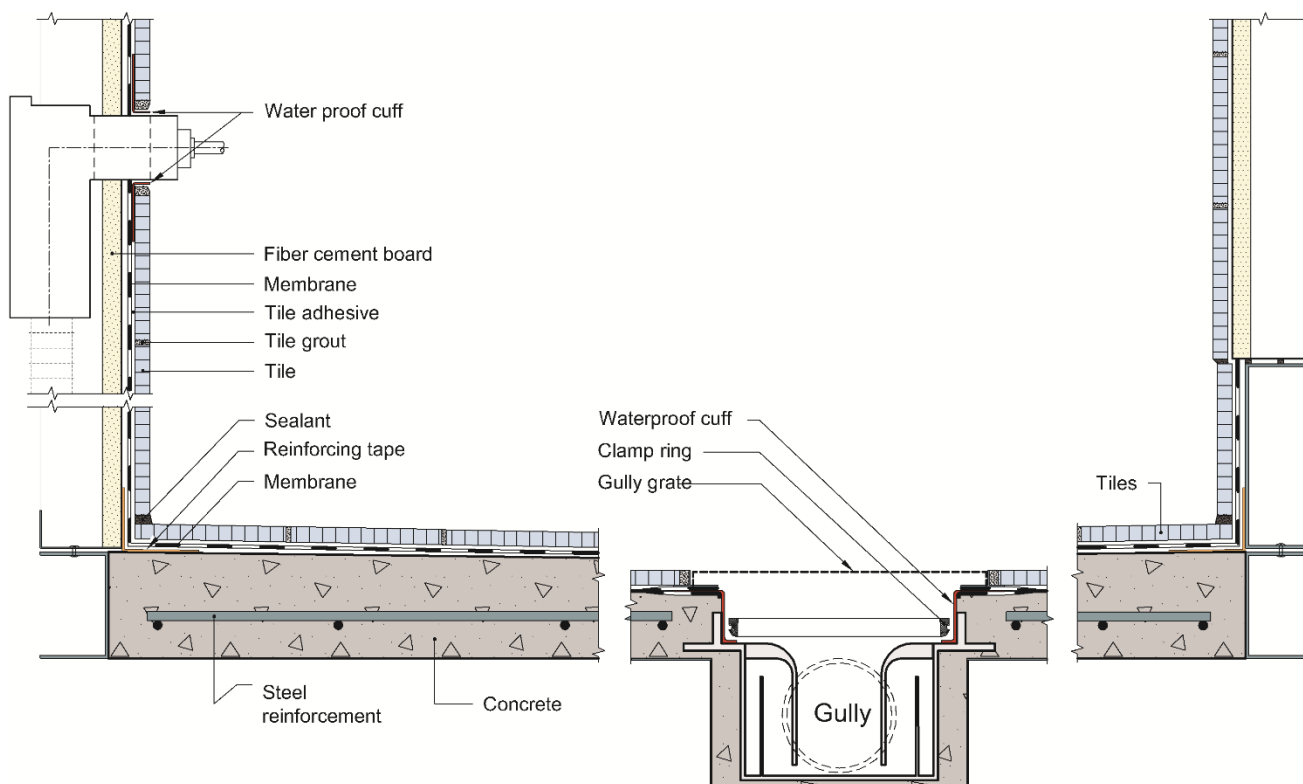


Fig. 3  
Floor and wall cross section

Table 1  
Product specification

Component	Specification
Concrete	X0 C15 S5, EN 206:2013 Expanded clay - Laterite
Reinforcement in floor	Reinforcing mesh 100x100, 6 mm Steel quality: B450C
Floor steel frame	2 mm steel profiles. Steel quality: S250GD
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 TG 2402
Tile adhesive	Mapei Keraflex S1
Mortar for grouting	Mapei Keracolor FF or Mapei Ultracolor Plus
Tiles on floor and wall	Tiles to EN 14411
Elastic sealant	Mapei Mapesil LM
Pipe-in-tube system	Uponor, SINTEF TG 20013 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
Hand basin mixer	Product certified according to EN 817 and NKB 4
Shower mixer	Product certified according to 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/m<sup>2</sup>.

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.

*Reaction to fire*

Internal surfaces covered with ceramic tiles performed in accordance to EN 14411 have a reaction to fire classification of A1 in accordance to EN 13501-1.

Reaction to fire classification for painted surfaces has not been determined.

*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*

Bathsystem Ultralight Bathroom Pod 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*

Bathsystem Ultralight Bathroom Pod 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*

Bathsystem Ultralight Bathroom Pod 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*

Bathsystem Ultralight Bathroom Pod 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 Bathsystem Ultralight Bathroom Pod.

**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.

*Sound requirements and fire safety*

Requirements for fire resistance and sound insulation requirements for the building construction in connection to the use of the bathroom modules must be assessed and designed individually in each separate building project.

*Safety in case of fire*

Shafts located next to the bathroom modules must be performed with fire resistance in accordance to TEK guidance document ("veiledning til TEK") and the fire class of the current building.

*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**

Bathsystem Ultralight Bathroom Pod 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 Bathsystem Ultralight Bathroom Pod is produced in accordance with the preconditions applying to this approval.

The manufacturing of Bathsystem Ultralight Bathroom Pod 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 EN ISO 9001:20089, Certificate No. CH-35624.

**8. Basis for the approval**

The evaluation of Bathsystem Ultralight Bathroom Pod is based on reports owned by the holder of the approval.

**9. Marking**

Bathsystem Ultralight Bathroom Pod 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.

**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

A handwritten signature in blue ink that reads "Hans Boye Skogstad". The signature is written in a cursive style with a large, sweeping flourish at the end.

Hans Boye Skogstad  
Approval Manager