SINTEF Technical Approval

TG 20012

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Valid until 01.10.2025
Provided listed on
www.sintefcertification.no

SINTEF confirms that

Bathsystem prefabricated bathroom modules

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.
Via Cavour n° 149
25010 Calcinato (BS)
Italy
www.bathsystem.com

2. Product description

General

Bathsystem prefabricated bathroom module is a system of prefabricated bathrooms to be placed in a building structure as separate units. The bathroom modules are supplied with sanitary installations, light fittings and piping installed and made ready for connection to the water and drainage systems. The modules are produced in sizes and with sanitary equipment customized to each individual building project. A typical bathroom module with a floor area of 5 m^2 weights approx. 3200 kg.

Table 1 gives product specifications for the most important components and materials incorporated in the modules. A detailed description of the module construction is given in *"Standard construction details for Bathsystem prefabricated bathroom modules relating to SINTEF Technical Approval No. 20012"*. This collection of construction details constitutes a formal part of the approval, and the version filed at SINTEF at all times applies.

Floor

The floor consists of a reinforced concrete plate, and has a liquid applied waterproofing membrane and ceramic tiles on top as illustrated in figure 2. The bathroom modules may be supplied with floor heating in the form of electric heating cables or pipes for warm water heating.

The floor has a slope of approx. 1:100. The shower area is depressed by 5 mm relative to the remainder of the floor and has a slope of approx. 1:50. The height difference between the drain grid and the floor by the door opening is approx. 25 mm. The shower area perimeter is lowered approx. 10 mm. into the floor by a stainless steel profile.

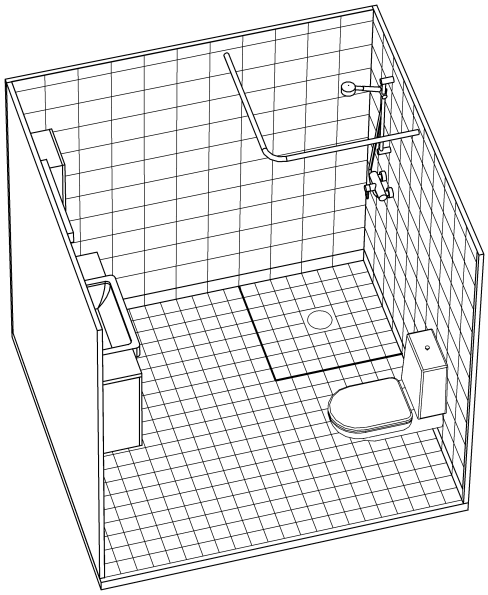

Fig. 1
Bathsystem prefabricated bathroom modules, principle construction

Walls and ceiling

The wall consists of 50 mm reinforced concrete and has a liquid applied waterproofing membrane and ceramic tiles on top. The ceiling consists of 60 mm reinforced concrete.

The modules are supplied with a hole in the ceiling or in the wall for connection of a ventilation system.

Fittings

All piping and sanitary fittings installed in the modules have their properties documented by separate product certificates or approvals. The water supply is based on a pipe-in-tube system with a distribution box and stopcock located on the wall of the module. All pipe penetrations in walls are sealed with rubber sleeves.

3. Fields of application

The prefabricated bathroom modules can be used for bathrooms in dwellings, hotels and other buildings with equivalent conditions for the use of wet rooms.

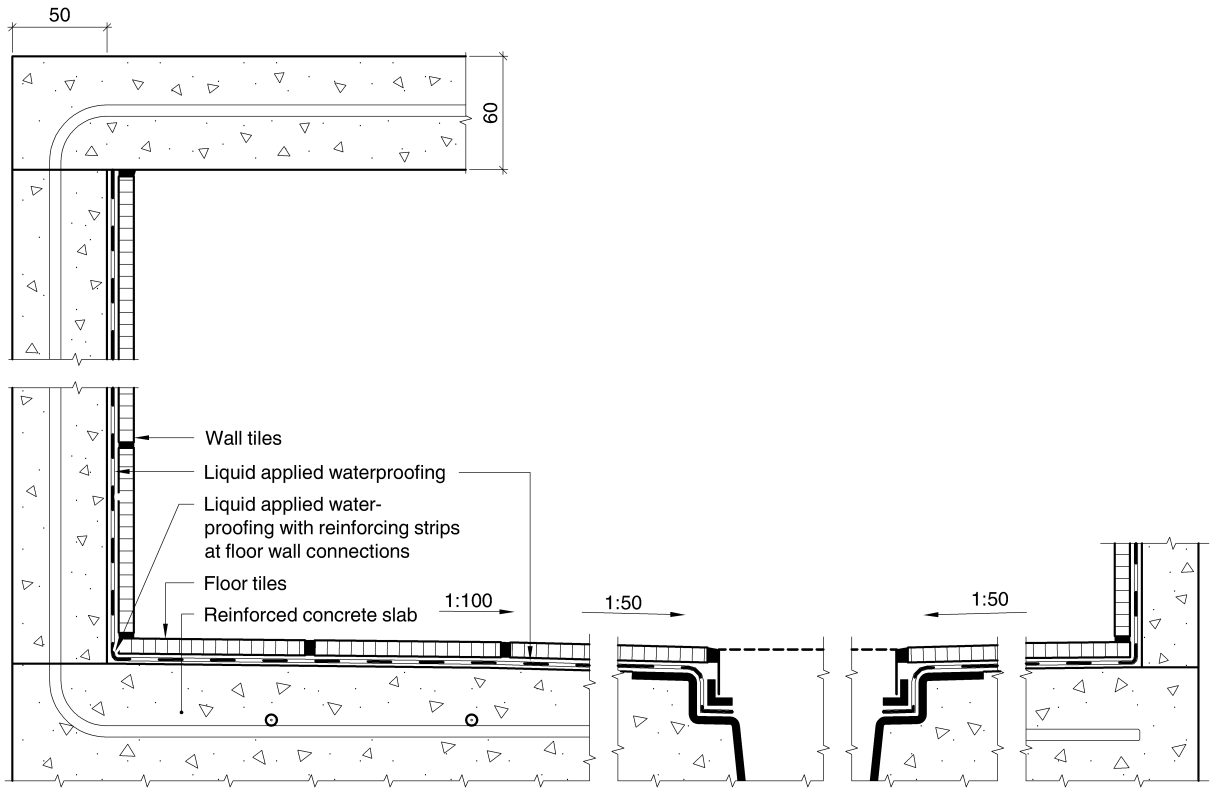

Fig. 2
Principle design of floor, wall and ceiling structures. Vertical section

Table 1
Product specification

Component	Specification
Concrete	X0 C15 S5, En 206:2013, Expanded clay - Laterlite
Reinforcement in floor	Reinforcing mesh 100 x100, 6 mm, Steel quality: B450C
Reinforcement in wall and roof	Reinforcing mesh 150x150 6 mm, Steel quality: B450C
Steel profile in floor, shower perimeter	Steel quality: EN10028-7, EN10088-2, EN10088-4, ASTM A240, ASME SA240, ASTM A480, ASMESA480
Tiles on floor and wall	Tiles according to EN 14411
Waterproofing membrane	Mapei, Mapegum WPS with related components. SINTEF Technical Approval No 2402
Tile adhesive	Mapei Keraflex Maxi S1 or Mapei Ultralite S1
Mortar for grouting	Mapei Keracolor Type FF or Mapei Ultracolor Plus
Elastic sealant	Mapei Mapesil LM
Pipe-in-tube system	Uponor, SINTEF Technical Approval 20013 or LK Universal, SINTEF Technical Approval 20312
Waste water pipes	Valsir PEH. SINTEF PS 0377
Gully	Vieser Serres. SINTEF Product Certificate 0441, 0442, 0443, 0444 and 1889. Gullies in PP. Product certified according to EN 1253.
WC	Product certified according to EN 997 or NT VVS 120
Basin mixer	Product certified according to EN 817 and NKB 4
Shower mixer	Product certified according to EN 1111

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^2.

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.

Water tightness

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

Properties related to fire

The reaction to fire of interior surfaces is class B-s1, d0 according to EN 13501-1. Fire resistance is not determined.

Sound insulation

Sound insulation performance has not been determined.

Thermal insulation

Bathsystem prefabricated bathroom modules have no thermal insulation.

5. Environmental aspects

Substances hazardous to health and environment

Bathsystem prefabricated bathroom modules 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 prefabricated bathroom modules is evaluated according to SINTEF Technical Approval – Health and Environmental Requirements version 09.05.2022. 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. The product meets the requirements in BREEAM-NOR v6.0, Emissions from building products according to Hea 02 Indoor air quality.

Waste treatment/recycling
Bathsystem prefabricated bathroom modules 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.

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.

Accessibility
The bathroom modules must be designed and fitted in such a way that the requirements of the technical regulations under the Planning and Construction Act regarding accessibility for persons with impaired vision and mobility are met.

External sanitation systems
The modules must be placed in the building in a way that gives access to external sanitation systems outside the module for inspection, repair or possible replacement, for instance by shafts. Leaks in shafts must be made visible and not damage the building.

Electrical wiring
By delivery of the Bathsystem to Norway, the electrical installations shall be carried out in accordance with *Regulations for low voltage (SEL) with guidance, NEK 400*.

Sound and fire
For each individual building project the use of the bathroom modules shall be evaluated and planned in accordance with the relevant fire resistance and sound insulation requirements of the building.

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

Transport and storage
During transport and storage, the modules must be placed on a level, stable foundation, and protected by packaging to prevents effects of moisture on the outside of the modules.

7. Factory production control

Bathsystem prefabricated bathroom modules are 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 modules are produced in accordance with the preconditions applying to this approval.

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

The quality system 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 evaluation of Bathsystem prefabricated bathroom modules is based on reports owned by the holder of the approval.

The evaluation of design and technical solutions are based on recommendations given in SINTEF Building Research Design Guides.

9. Marking

Delivery shall be accompanied by delivery documents including as a minimum the manufacturer's name and address, the project identification and the installation specifications drawn up for the building project.

The approval mark for Technical Approval No. 20012 shall be used, visible inside the module after installation in the building.

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

Hans Boye Skogstad
Approval Manager