

# SINTEF Technical Approval

## TG 20041

SINTEF confirms that

## Eurocomponents prefabricated bathroom module

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

Eurocomponents S.p.A  
Via Benaco 90  
25081 Bedizzole BS  
Italy  
[www.eurocomponents.eu](http://www.eurocomponents.eu)

### 2. Product description

#### General

Eurocomponents 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 customised to each individual building project. A typical bathroom module with a floor area of 5 m<sup>2</sup> weights approx. 3800 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 Eurocomponents prefabricated bathroom modules relating to SINTEF Technical Approval No. 20041". This collection of construction details constitutes a formal part of the approval, and the version filed at SINTEF Building and Infrastructure at all times applies.

#### Walls and ceiling

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

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

#### Floor

The floor consists of a concrete slab reinforced with a steel mesh and steel rebars. The floor has a waterproof liquid applied membrane and tiles covering the concrete substrate as illustrated in figure. 2. The bathroom modules may be supplied with floor heating by electric heating cables or water pipes for district heating. The floor has a slope of approx. 1:50 in the shower area and approx. 1:100 outside the shower area. The height difference between the floor drain grid and the membrane at the door threshold is minimum 25 mm. The location of the gully can be designed centric in the shower area or close to the wall.

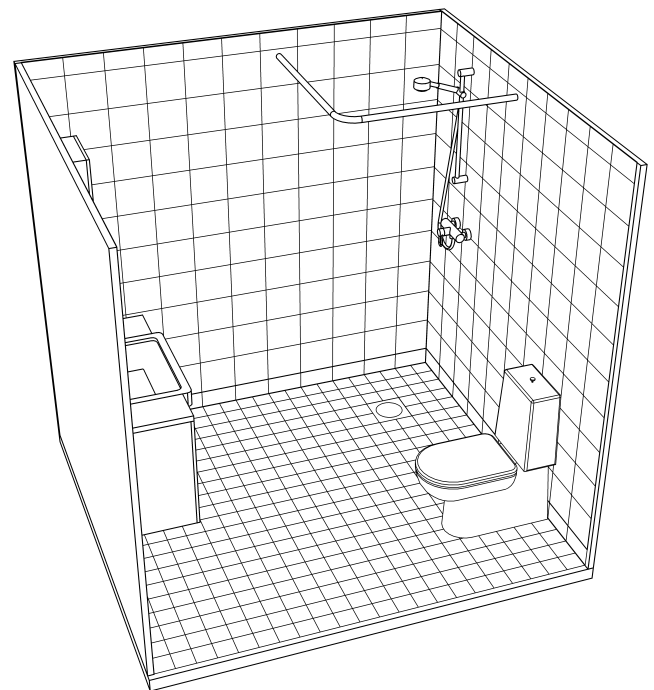


Fig. 1  
Principle design for Eurocomponents prefabricated bathroom module

#### Installations and equipment

All piping and sanitary installations used in the module have product certificates or separate technical approvals which document their properties. The water supply is a pipe-in-tube system. The distribution box and stop cock are placed on the exterior module wall. The modules are made with a hole in the ceiling for connection to the ventilation system.

### 3. Fields of application

Eurocomponents prefabricated bathroom module is designed for use in private homes, hotels and other buildings with equivalent conditions for the use of wet rooms, as described under clause 6. The modules can be used in buildings risk class 1-6 in fire class 1,2 and 3.

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

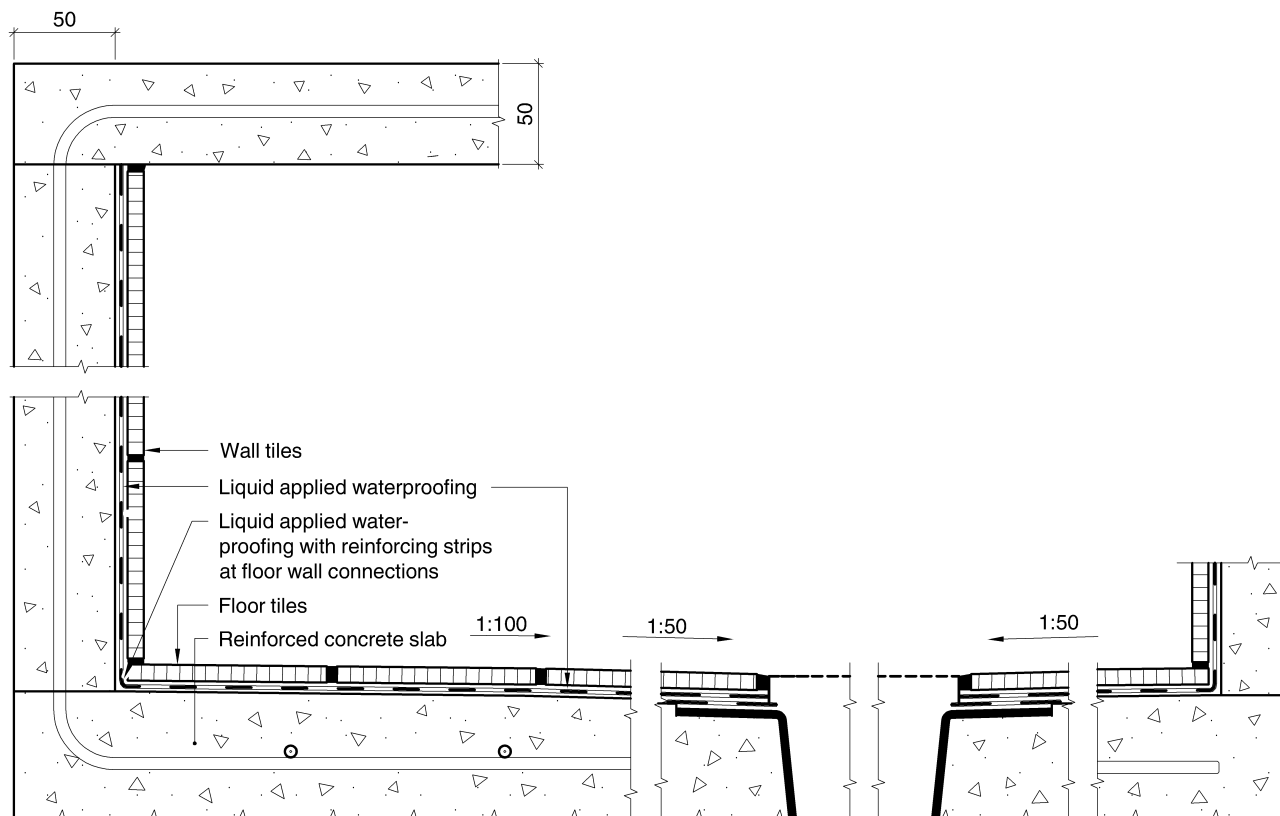


Fig. 2  
Vertical section

Table 1  
Product specification

Component	Specification
Concrete slab	CLS mix design, Italcementi SPA
Reinforcement in floors	Mesh 150 x 150 mm, Ø 5 mm Rebars: Ø 8 mm
Reinforcement, wall and ceiling	Mesh: 150 x 150 mm, Ø 5 mm
Waterproofing membrane	Mapei, Mapegum WPS with related components. SINTEF TG 2402
Ceramic tiles	According to EN 14411
Tile adhesive	Mapei Keraflex Maxi S1
Tile mortar grouting	Mapei Ultracolor Plus
Elastic sealant	Mapei Mapesil AC
Gullies	Unidrain gulvavløpssystem, Corner and Line, SINTEF TG 2552, or JAFO PS75 gully, SINTEF PS 0704
Elastic sealant	Mapei Mapesil AC or Casco Aquaseal
Pipe-in-tube system, included manifold cabinet	Uponor Tappevanntsystem PEX SINTEF TG 20013, or LK Universal pipe in tube system SINTEF TG 20312
Waste pipes	Geberit HDPE, SINTEF PS 0373
WC	Sertified products with bolt on cistern, acc. to EN997, Insta SBC 0402 eller NT VVS 120.
Hand basin mixer	Sertifiserte produkter iht. EN 817 og NKB 4
Shower mixer	Sertified products acc. to EN 817 or 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. 2,0 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 load of 1.5 kN according to ETAG 022 *Guideline for European Technical Approval of watertight covering kits for wet room floors and walls*, Annex E.

Seat for disabled in the shower area has been tested with a 2,2 kN load. Handbar has been tested with a load of 1,2 kN.

*Water tightness*

The performance of Eurocomponents prefabricated bathroom module has been documented through testing according to ETAG 022 *"Guideline for European Technical Approval of Watertight Covering Kits for Wet Room Floors and Walls"*, Annex A and E, with satisfactory results.

*Safety in case of fire*

Interior surfaces covered with ceramic tiles that are done in accordance with EN 14411 are classified Fire Class A1 according to EN 13501-1.

*Sound insulation*

Sound insulation performance has not been determined.

*Thermal insulation*

Thermal insulation properties have not been determined.

*Durability*

Pipes and sanitary components, waterproofing and surfaces are assessed to have adequate durability

## 5. Environmental aspects

### *Substances hazardous to health and environment*

Eurocomponents prefabricated bathroom module contains no hazardous substances with priority in quantities that pose any increased risk for human health and environment. Chemicals with priority include CMR, PBT or vPvB substances.

### *Effect on indoor environment*

Eurocomponents prefabricated bathroom module 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*

Eurocomponents prefabricated bathroom module contains no hazardous substances and is assessed as non-hazardous waste according to Norwegian Waste regulations (*Avfallsforskriften*). The product shall be delivered to an authorized waste treatment plant for material recovery, energy recovery or disposal according to recommendations from the Manufacturer's.

### *Environmental declaration*

Environmental declaration (EPD) has not been worked out for the Eurocomponents prefabricated bathroom module.

## 6. Special conditions for use and installation

### *General*

General guidelines for use of prefabricated bathroom modules can be found in *Byggforskserien 520.130*.

### *Installation*

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.

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

### *Accessibility*

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.

### *Sound and fire*

Requirements for fire resistance, properties for internal surfaces and sound insulation of the building must be assessed and designed for each project.

### *Safety in case of fire*

Shafts facing a module must have fire resistance according to the Guidelines for TEK and the buildings fire class required for in the individual project.

### *Electrical wiring*

Bathroom modules delivered to Norway requires that electrical installations are in accordance with *Regulations for low voltage (FEL) with guidance, NEK 400*. Installations on the outside of the module must be prepared for future repair or replacement.

### *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. Each module must have serial number/ ID number easily visible on the outside of the packaging.

## 7. Factory production control

Eurocomponents prefabricated bathroom module is produced by Eurocomponents S.p.A.  
Via Benaco 90  
25080 Bedizzole (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 Eurocomponents prefabricated bathroom module 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 Eurocomponents S.p.A. is certified by the Swiss Association for Quality and Management System SQS according to ISO 9001:2008, Certificate No. DCT\_2136\_12/923\_15\_Q.

## 8. Basis for the approval

The evaluation of Eurocomponents prefabricated bathroom module 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**

Eurocomponents prefabricated bathroom module is to be marked with producer name, product name and production date. The approval mark for Technical Approval No. 20041 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



Susanne Skjervø  
Approval Manager