

TITLE OF INVENTION**AN IMPROVED STRUCTURE OF A CUBICLE BATHROOM AND A METHOD OF
FABRICATING THE SAME****BACKGROUND OF THE INVENTION****(a) Field of the Invention**

The present invention relates generally to an improved structure of a cubicle bathroom, and in particular, relates to a prefabricated cubicle bathroom unit with all sanitary wares, fittings, electrical wiring and plumbing ready to be used in high rise apartments or hotel projects. The present invention also relates to a method of fabricating a cubicle bathroom.

(b) Description of the prior art

Conventional in-situ construction of bathrooms on a high rise apartment is most tedious, time consuming and difficult task in high rise projects. As in most of construction projects, bathroom units are normally built by way of conventional method. In some cases, if an owner of the house desires to renovate the bathroom, for example, with a larger tub with shower enclosure, it is rather labourious and time-consuming in renovating the bathroom cubicle using the conventional method by demolishing the bathroom walls and refurnishing the floor.

This shortcoming may be solved by employing conventional prefabricated bathrooms using fibre glass panels as bathroom enclosure. These bathrooms have drawbacks as the fibre glass panels are assembled on site and the insulation thereof is poor. In addition, a layer of concrete slab is normally required to be fabricated at the lower section of the enclosure to provide support thereto.

It is also common to provide wall plumbing in bathrooms in order to install sanitary wares, such as water closets, showers, tubs and the like in the bathroom. This requires predetermined plumbing, including water pipes and sewer pipes

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interconnected to the exact position for mounting different plumbing fixtures. However, these fixtures being mounted to the wall/floor may not be easily relocated if the locations of the fixtures are changed. Prior art which shows prefabricated bathroom and utility building assemblies can be seen in US Patent no. 3,221,454, issued to Togni, entitled "A Prefabricated Utility Building Assembly". It relates to the prefabrication of pipes into a hollow wall section which can be mounted in a bathroom or other utility room. US Patent No. 3,766,574, issued to Smid, Jr, entitled "A Prefabricated Plumbing Partition" related to a wall partition adapted for installation in a wall of a building which has the plumbing assembly encapsulated in a cellular polyurethane block and have the water supply and drain pipes formed within the molded partition and extending therefrom for connection to the building's plumbing and to the plumbing fixtures.

US Patent No. 3,533,200 contemplates a "Prefabricated Room Assembly", which may be in the form of a stackable, modular room.

U S Patent No. 5,459,966 issued to Suarez et al, discloses a prefabricated polymer bathroom wall apparatus having a unitary molded wall section formed of a waterproof polymer and having a grid work of interconnected molded frame portions forming a plurality of cells there between. The prefabricated wall section can be attached to a bathroom wall and connected with a plurality of coupling members to a building's plumbing.

None of the prior art appears to have contemplated the unique combination of the flexible application of the cubicle bathroom as have been taught and claimed in the present invention.

SUMMARY OF THE INVENTION

Therefore it is an aspect of the present invention to provide an improved structure of a cubicle bathroom comprising (a) a concrete floor containing a plurality of pipes for a shower, wash basin and water closet pan outlet; (b) a plurality of wall panels enclosed said concrete walls vertically along the boundary of the concrete floor to

enclose the said shower, water basin and the water closet pan outlet, and having a plurality of cassettes rivetted at the lateral edges of the wall panel; wherein a front wall panel is provided with a hinged door to provide entrance to the bathroom; (c) a top cover, disposed on top of the wall panels, having at least one access panel being mounted thereon; and (d) a plurality of piping connectors disposed to the concrete floor for connection with water supplies to the bathroom.

Another aspect of the present invention is to provide a method of fabricating a cubicle bathroom, comprising the steps of (a) forming a concrete floor together with a plurality of embedded pipes for a shower, wash basin and water closet pan outlet; (b) mounting a layer of waterproofing membrane on top of the concrete floor; (c) tiling with ceramic tiles on the concrete floor; (d) erecting a plurality of wall panels, having at least one wall panel being provided with a door and a door frame, to enclose the concrete floor; and (e) installing with interior finishing and accessories within the enclosed cubicle bathroom.

Accordingly, it is an object of the present invention to provide an improved structure of a cubicle bathroom, wherein the entire bathroom unit is completely prefabricated in factories before it is transferred to a specific location for installation.

Yet another object of the present invention is to provide an improved structure of a cubicle bathroom, wherein no other work is required within the cubicle bathroom after it has been delivered to a site for installation.

Yet a further object of the present invention is to provide an improved structure of a cubicle bathroom, wherein the installation of the bathroom unit on a specific site is fast and simple, and a four-man team, with the use of a crane, is able to install a single unit of the bathroom in about 30 minutes.

Additional advantages of this invention will become apparent from the description which follows, taken in conjunction with the accompanying drawings.

It is an object of the present invention to provide an improved

BRIEF DESCRIPTION OF THE DRAWINGS

Fig. 1, an isometric, cut-away view of the preferred embodiment of the cubicle bathroom of the present invention.

Fig. 2 is a top view of the invention of Fig. 1.

Fig. 3 is a side, cross-sectional view of the invention, along line A-A of Fig. 1.

Fig. 4 is a schematic view showing the roof of the cubicle bathroom unit of the present invention.

DETAILED DESCRIPTION OF THE PREFERRED EMBODIMENT

Referring to the Figs. 1 to 3 and especially to Fig. 1, a cubicle bathroom 10 of the present invention is illustrated comprising a concrete floor 30; a plurality of wall panels 40 enclosed the concrete floor 30; a top cover 50 (referring to Fig. 4), disposed on top of the wall panels 40, having at least an access panel 52 (referring to Fig. 4) being mounted thereon; and a plurality of piping connectors (not shown) embedded within the concrete floor 30.

As shown in Fig. 1, the cubicle bathroom 10 comprises a prefabricated concrete floor 30 having steel frame (not shown) around the edge thereof and a layer of wire mesh (not shown) embedded within the concrete floor 30; a waterproofing membrane (not shown) being mounted to the concrete floor 30 to prevent water leakage from the cubicle bathroom 10. In accordance with the present invention, a plurality of cassettes formed from zinc galvanised steel sheet, bent to form a thick cassette with length and width according to bathroom layout, being rivetted together to form a wall with good insulation. PVC foam tape or the like is used as a sealant and is mounted between the cassettes.

A plurality of cassette walls are vertically fixed to the floor 30 by using a plurality of screws, such as zinc galvanised screws. The joints formed between the floor

and the cassette walls are sealed, similarly, using PVC form tape. A steel mesh or steel netting is welded onto the cassette wall and a layer of cement mortar, having a thickness of 60 to 70 mm, is plastered over the mesh or netting. A special adhesive is used for tiling onto the cassette wall.

In accordance with the present invention, the cubicle bathroom 10 is provided with a ceiling 50 with an access ceiling panel 52, and a maintenance panel for the mounting of concealed piping, such as concealed copper pipes for hot and cold water supply piping.

A plurality of tiles are provided to the prefabricated concrete floor 30 using cement grout. In the preferred embodiment, a plurality of pipes (not shown), such as waste pipes from shower 38, wash basin 32 and water closet pan 36 outlet are cast into the prefabricated floor 30. All electrical wirings are disposed into a PVC conduit and mounted behind the cassette wall to provide power supply to the electrical fittings, such as the lighting, instant heater and a heat detector.

Referring again to Fig. 1, the cubicle bathroom 10 with all the necessary fixtures 32, 36, 38 being mounted is shown. Finally carpentry work, such as installation of window and frame, is done to the cubicle bathroom unit.

In accordance with the present invention, the prefabricated cubicle bathroom unit 10 is off-loaded at the specific site for installation. The unit 10 is craned and lifted into position. After the prefabricated cubicle bathroom unit 10 is installed to the building, main water supply and main sewage supply are connected to the cubicle bathroom 10 at their respective piping connectors. In order to ensure plumbing works have been properly done to the prefabricated cubicle bathroom, pressure tests for all piping are carried out on site.

In accordance with the present invention, optional bathroom accessories such as mirror, towel hanger or towel rail, etc. may be installed at the wall panel within the unit.

The process of making the prefabricated cubicle bathroom unit is described herein below. In accordance with the present invention, the method of fabrication a prefabricated cubicle bathroom unit comprises the steps of (a) forming a concrete floor together with piping for the cubicle bathroom; (b) mounting a layer of waterproofing membrane on top of the concrete floor; (c) tiling with ceramic tiles on the concrete floor; (d) erecting wall panels, with door and door frames, to enclose the concrete floor; and (e) installing with interior finishing and accessories within the enclosed cubicle bathroom.

In accordance with the present invention, a steel frame for the base of the cubicle bathroom 10 is first made. A layer of wire mesh is cast in concrete to form a concrete base. Horizontal waste pipes are cast into the concrete floor 30, and copper pipes for hot and cold water supply piping are cast behind the cassette wall. Then, a layer of waterproofing membrane is applied to the concrete base. Zinc galvanised steel sheets is used and is bent to form thick cassettes with size based on the length and width of the bathroom layout. These cassettes are then rivetted together to form wall panel and PVC form tape is used as sealant to seal (gaps) between the cassettes. The cassette wall is then fixed to the floor using a plurality of zinc galvanised screws and the joints between the cassette wall and the floor are sealed with a sealant, i.e. PVC form tape.

The final step of completing the prefabricated cubicle bathroom unit 10 is the installation of sanitary wares and fittings, and carpentry works. In accordance with the present invention, the prefabricated cubicle bathroom unit 10 is craned, transported, and lifted to the site for installation.

In accordance with the present invention, the installation of such prefabricated cubicle bathroom unit 10 is completed by furnishing a cement mortar plaster to the wall and closing all possible gaps between the cubicle unit.

This invention has been described in detail with reference to a particular embodiment thereof, but it will be understood that various other modifications can be effected within the spirit and scope of this invention.

CLAIMS

1. An improved structure of a cubicle bathroom unit comprising
 - (a) a concrete floor for mounting of a plurality of pipes from a shower, wash basin and a water closet pan outlet;
 - (b) a plurality of wall panels enclosed said concrete walls vertically along the boundary of the concrete floor to enclose the said shower, water basin and the water closet pan outlet; wherein a front wall panel is provided with a hinged door to provide entrance to the bathroom;
 - (c) a top cover, disposed on top of the wall panel, having an access panel being mounted thereon; and
 - (d) a plurality of piping connectors disposed to the concrete floor for connection with water supplies to the bathroom.
2. An improved structure of a cubicle bathroom as set forth in Claim 1, wherein a waterproofing membrane is mounted to the concrete base.
3. An improved structure of a cubicle bathroom as set forth in Claim 1, wherein the plurality of wall panels are interconnected by a plurality of rivets.
4. An improved structure of a cubicle bathroom comprising
 - (a) a concrete floor for mounting of a plurality of pipes from a shower, wash basin and a water closet pan outlet;
 - (b) a plurality of wall panels enclosed said concrete walls vertically along the boundary of the concrete floor to enclose the said shower, water basin and the water closet pan outlet; wherein a front wall panel is provided with a hinged door to provide entrance to the bathroom;
 - (c) a top cover, disposed on top of the wall panel, having a ceiling and an access panel being mounted thereon; and
 - (d) a plurality of piping connectors disposed to the concrete floor for



connection with water supplies to the bathroom.

5. A method of fabrication a cubicle bathroom comprising the steps of:
- (a) forming a concrete floor together with piping for the cubicle bathroom;
 - (b) mounting a layer of waterproofing membrane on top of the concrete floor;
 - (c) tiling with ceramic tiles on the concrete floor;
 - (d) erecting wall panels, with door and door frames, to enclose the concrete floor; and
 - (e) installing with interior finishing and accessories within the enclosed cubicle bathroom.

