

TITLE OF THE INVENTION

SEWAGE DELIVERY SYSTEM FOR DORMITORY AND THE METHOD THEREOF

FIELD OF THE INVENTION

The present invention relates in general to sewage management system and the
5 method thereof and more particularly to a human waste management system and the
method for waste management systems which provide for specific timing pumping
out of human waste slurry such that a flooded or congested waste slurry storage is
avoided. The presented human waste treatment system thus allows more people to
live in a dormitory within a factory site.

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BACKGROUND OF THE INVENTION

A problem associated with the removal of accumulated sewage is the unspecific
period of time in transporting the sewage slurry from the storage tank for disposal.
These accumulated sewage in a housing block or a dormitory at factory site needs
15 piping system for transporting and requires routine removal for proper system
operation of the sewage management system in the factory site. The removal of the
accumulated sewage in a factory site in conventional systems is very inefficient and
not in the proper time to transport the accumulated human waste in the main human
waste storage tank. In some occasions where the problem becomes serious, the
20 entire waste management system may not be able to operate and it causes
inconvenient to the tenants and users in the factory site.

Due to the increase of population, more sewage tanks for the storage of human
waste slurry are needed to store the human waste before it was disposed of.
25 However, there is a problem that land availability is a limitation and cost of acquiring
land is high. In view of that, the number of people living in a dormitory of a factory
site is thus restricted.

The sewage flowrate of public sewage pipes in a city is at peak around morning and
30 evening. For instance, in the morning, from 5AM-8AM and in the evening, from
5PM-8PM, as most of the people use toilets during these two periods of the day to
prepare for office and returning back to home. Therefore, the disposal of human
waste to the waste storage tank is at maximum during these hours. If the sewage is

not delivered via pipe to the public sewage pipes, and in serious occasion, sewage will be flooded from the main waste storage tank and the toilets of the dormitory of a factory site may not be able to use.

- 5 The only viable alternative to alleviate these problems is to modify existing transporting of sewage from the main storage tank for disposal such that the storage tank is always having enough room to accommodate more of sewage at a specific time of the day even if there is a huge increase in population.
- 10 Accordingly, the present invention is directed to overcoming one or more of the problems as set forth above.

SUMMARY OF THE INVENTION

- 15 A human waste management system and a method treating human waste are disclosed. The present system for handling human waste comprises a small waste storage tank having a plurality of pipes connecting to toilet bowls in each unit of the lower floor dormitory in the factory;

- 20 a main waste storage tank having a plurality of discharge outlets mounted thereto, which is positioned at a distance from the dormitory for the collection of human waste from the higher floor of the dormitory and from the small waste storage tank located at close proximity to the dormitory;

a waste pumping system to pump the waste from the small waste storage tank to the main waste storage tank;

- 25 a plurality of pipes connecting the small waste storage tank to the main waste storage tank and from the individual toilet bowls of the dormitory to the main waste storage tank;

- 30 a timer controlled valve mounted to the discharge outlet pipe of the main waste storage tank, whereby the time-controlled valve is connected to public sewage pipe for waste disposal, whereby the switching on and off of the time controlled valve enables the human waste in the main storage to be delivered to the public sewage pipe for disposal, thus more space is available for storage within the main storage tank.

Yet a further object of the present invention is to provide a method of treating sewage for a dormitory comprising the steps of:

5 collecting sewage of the dormitory into a small waste storage tank for the lower floor units;

pumping the waste from the small waste storage tank into a main waste storage tank via a plurality of pipes;

gathering of the sewage into the main waste storage tank via a plurality of pipes connecting with the main waste storage tank; and

10 opening of time controlled valve on discharge outlet pipe located on the main storage tank to discharge out the waste in the main waste storage tank for disposal to the public sewage pipe.

15 Still a further object of the present invention to provide an automatic electronic smart sewage transportation system, wherein the main waste storage tank further mounted with a SMS sensor and a liquid level sensor, and an emergency discharge pipe is connected to the main waste storage tank.

20 Yet a further object of the present invention is to provide a sewage transportation system, wherein a plurality of pumps are used to pump waste from the small waste tank to the main waste storage tank for storing.

25 These and other features of the present invention will be better understood and appreciated from the following detailed description of the following embodiments, selected for the purposes of illustration.

BRIEF DESCRIPTION OF THE DRAWING

FIG. 1 is a schematic view showing an apparatus for human waste management system in accordance with the present invention.

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FIG. 2 is a graph showing the percentage of population generating human waste in one day in accordance with the present invention.

FIG. 3 is a graph showing ideal sewage usage in a day by employing the method and system of the present invention.

5 DETAILED DESCRIPTION OF THE PREFERRED EMBODIMENTS

FIG. 1 illustrates a human waste management system for a dormitory in accordance with the present invention.

The present invention provides a human waste treatment system for dormitory in factory site comprising: a small waste storage tank 210 having a plurality of pipes connecting to toilet bowls in each unit of the lower floor dormitory in the factory; a main waste storage tank 400 having a plurality of discharge outlet pipes mounted to the main waste storage 400, which is positioned at a distance from the dormitory for the collection of human waste from the higher floor 200 of the dormitory and from the small waste storage tank 210; a waste pumping system 300 to pump the waste from the small waste storage tank 210 to the main waste storage tank 400; a plurality of pipes 350 connecting the small waste storage tank 210 to the main waste storage tank 400 and from the individual toilet bowls of the dormitory to the main waste storage tank 400; a timer controlled valve 450 mounted to the discharge outlet pipe 420 of the main waste storage tank 400, whereby the time-controlled valve 400 is connected to public sewage pipe 500 for waste disposal, whereby the opening of the time controlled valve 450 enables the waste in the main storage 400 to be delivered to the public sewage pipe for disposal. The time for the time controlled valve 450 is preferably set to open from 8 AM to 4 PM, and from 9 PM- 5 AM the following day. These hours are the least people using the toilet at the dormitory. There is also a discharge pipe 460 and an emergency discharge pipe 470 connected to the main waste storage tank. The discharge pipe 460 is for manually transporting of waste from the main waste storage tank 400. In case the timer controlled valve 450 is not functioned automatically, the disposal of the waste can be done manually by turning on the valve 470 to dispose waste to the public sewage pipe 50.

The present invention serves as a means for disposal of sewage from the main waste storage tank 400 at an appropriate time period controlled by a timer controlled valve such that the dormitory at the factory site can accommodate more people and the insufficient room for human waste storage tank 400 at a factory site is solved.

As shown in FIG. 1, a five or more stories dormitory is equipped with modern toilet flush system where each of the toilet on every floor of the dormitory building is connected through pipes to either the small waste storage tank 210 positioned at a nearby location to the factory site, or direct to the main waste storage tank 400 positioned at a distance from the dormitory within the factory site.

For the lower floors of the dormitory, such as first and second floor of the dormitory, the human waste are pumped into the small waste storage tank 210 and for the higher floor above second floor, the sewage is pumped directly to the main human waste storage tank.

A plurality of pumps 310 are provided to pump the human waste from the small waste storage tank 210 to flow into the main waste storage tank 400. The pumps 310 are equipped with float liquid indicator to indicate the flowrate of the pump 300.

The main waste storage tank 400 can be of any shape and size, as long as it meets local statutory requirement for the temporary storage of sewage and can be made of any material that can have good resistance to leakage. The main waste storage tank 400 contains an SMS sensor 452, a liquid level indicator 454 and has a plurality of discharge outlet pipes. A discharge valve 450 is mounted to one of the discharging outlet pipe. The discharging pipe is connected by another pipe to be joined to the public sewage pipe such that the human waste collected in the main storage tank 400 can be conveniently transported away by the public sewage pipe 500. The transporting away of human waste from the main waste storage tank 400 by the public sewage pipe 500 will again reduce the waste in the storage tank 400.

FIG. 2 indicates the current situation of toilet usage within a day, the two peak periods where toilet usage being maximum being from 5 AM to 8 AM, and from 5-9 PM. At this two periods, the usage is beyond 50 % to as high as 80%. If the amount of sewage is estimated to be a small figure, the system can be configured in such a way so that the sewage can directly by pass the consolidation in storage tank 400, and straight to the public sewage pipe 500.

FIG. 3 shows the idea sewage flow rate occurred within a day. In accordance with the present invention, by employing the system as shown, the ideal sewage flow rate should be at 70% and this is achievable by having a time controlled valve 450 mounted at the discharging outlet pipe so that the total capacity of the main waste storage tank 400 leaves more storage space to hold more human waste from the dormitory.

With the mounting of the timer controlled valve 450 to the discharge outlet pipe, the discharge outlet pipe 420 can open automatically when the discharge outlet pipe 420 receive a signal from the timer controller (not shown) to open the valve 450. Thus, at any time, the sewage at the main waste storage tank 400 flows to the public sewage pipe 500, there will be more space within the main storage tank 400 and therefore more sewage can be kept. In view of the above, the present invention solves the needs of installing more main storage tanks 400 when more tenants move to the dormitory.

In accordance with the present invention, there is provided a method of transporting sewage for a dormitory comprising the steps of:

collecting sewage of the dormitory into a small waste storage tank;

pumping the waste from the small waste storage tank into a main waste storage tank via a plurality of pipes;

gathering of the human waste into the main waste storage tank via a plurality of pipes; and

opening of time controlled valve on discharge outlet pipe on the main waste storage tank to discharge out the waste in the main waste storage tank for disposal to the public sewage pipe.

In accordance with a preferred embodiment of the present invention to provide a human waste treatment system of the present invention wherein the main waste storage tank 400 further mounted with a SMS sensor 452 and a liquid level sensor 454 such that the level of the main storage tank 400 be sent to the authority for disposal. There is also an emergency discharge pipe is connected to the main waste storage tank 400. The plurality of pumps 300 are used to pump waste from the small waste tank 210 to the main waste storage tank 400 for storing.

Having described the invention in detail, those skilled in the art will appreciate that modifications may be made of the invention without departing from its spirit. Therefore, it is not intended that the scope of the invention be limited to the specific embodiments described. Rather, it is intended that the scope of the invention be
5 determined by the appended claims and their equivalents.

CLAIMS

1. A sewage transportation system for dormitory in factory site comprising:
a small waste storage tank having a plurality of pipes connecting to toilet bowls in each unit of the lower floor dormitory in the factory;
- 5 a main waste storage tank having a plurality of discharge outlets mounted thereto, which is positioned at a distance from the dormitory for the collection of human waste from the higher floor of the dormitory and from the small waste storage tank located at close proximity to the dormitory;
- 10 a waste pumping system to pump the waste from the small waste storage tank to the main waste storage tank;
- a plurality of pipes connecting the small waste storage tank to the main waste storage tank and from the individual toilet bowls of the dormitory to the main waste storage tank;
- 15 a timer controlled valve mounted to the discharge outlet pipe of the main waste storage tank, whereby the time-controlled valve is connected to public sewage pipe for waste disposal, whereby the switching on and off of the time controlled valve enables the human waste in the main storage to be delivered to the public sewage pipe for disposal, thus more space is available for storage within the main storage tank.
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- 25 2. The sewage transportation system of Claim 1, wherein the main waste storage tank further mounted with a SMS sensor and a liquid level sensor to indicate the level of sewage within the main waste storage tank.
3. The human waste treatment system of Claim 1, wherein an emergency discharge pipe is connected to the main waste storage tank.
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4. The human waste treatment system of Claim 1, wherein a plurality of pumps are used to pump waste from the small waste tank to the main waste storage tank for storing.
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5. A method of treating sewage for a dormitory comprising the steps of:
collecting sewage of the dormitory into a small waste storage tank;

pumping the waste from the small waste storage tank into the main waste storage tank via a plurality of pipes;

- 5 gathering of the sewage into a main waste storage tank via a plurality of pipes; and
opening of time controlled valve on the exist pipe on the main waste storage tank to
discharge out the waste in the main waste storage tank for disposal to the public
sewage pipe.

- 10 6. The method of treating sewage for a dormitory of Claim 5, wherein an
emergency discharge pipe is installed for discharging sewage in the main waste
storage tank to the public sewage pipe in case the timer controlled valve failure.

- 15 7. The method of treating sewage for a dormitory of Claim 5, wherein the main
waste storage tank is mounted with a discharge pipe for manually transporting of
waste from the main storage tank.