CLAIMS

1. An installation device for an integral building module of a building, said installation device comprising:

a console,

an adjustment device,

a connecting device,

a lifting device, and

an anti-tilt device,

wherein

the console is connected to the adjustment device and the lifting device respectively,

the connecting device is connected to the lifting device and the adjustment device respectively,

one end of the anti-tilt device is connected to the connecting device, and the other end of the anti-title device is provided with a counterweight hook to dispose a counterweight according to requirements, and

a power source and an air source are supplied by external apparatuses.

2. The installation device for the integral building module of the building according to claim 1, wherein

the console is provided with control switches including an electrical apparatus control switch, an oil cylinder control switch, an air source control switch, and an adjustment switch.

3. The installation device for the integral building module of the building according to claim 1, wherein

the adjustment device includes a telescopic arm, and

the telescopic arm is configured to extend or retract according to a size of the integral building module under control of the console.

4. The installation device for the integral building module of the building according to claim 1, wherein

the connecting device includes three connecting supports and an independent connecting support,

the connecting supports are connected to a telescopic arm respectively,

the connection device further includes a connecting bracing support,

an upper end of the connecting device is provided with a top connecting piece capable of performing insertion and fixed connection in cooperation with a bolt fixing hole disposed on the top of the integral building module, and

a lower end of the connecting device is provided with a bottom hook capable of being fixedly connected to a bottom lifting hole of the integral building module.

5. The installation device for the integral building module of the building according to claim 1, wherein

the lifting device includes an oil cylinder, a lifting support, a telescopic guide rod, and a locating pin,

a lower part of the lifting device is provided with an air cushion type transport device or a roller transport device,

the lifting device further includes a self-walking device to facilitate transporting the integral building module for in-place installation,

the lifting support is connected to the self-walking device, and

the telescopic guide rod is provided with a locating pin.

6. The installation device for the integral building module of the building according to claim 5, wherein the self-walking device includes a plurality of universal wheels.

7. The installation device for the integral building module of the building according to claim 5, wherein the air cushion type transport device includes four movable air cushions, and the air cushion is provided with a compressed air connecting mouth connected to the air source of the external apparatus.

8. The installation device for the integral building module of the building according to claim 5, wherein the connecting support is configured to be driven by the lifting support and the oil cylinder to perform ascending, locating or descending.

9. An installation method of the installation device for an integral building module of a building, said method comprises the steps of:

(A) according to a size and a height of the integral building module, controlling and adjusting a length of the telescopic arm of the adjustment device by the console to match with the integral building module; adjusting a height of the top connecting piece of the connecting support in the connecting device to match with the top connecting piece of the integral building module; and transporting the installation device by the self-walking device to closely contact with the integral building module;

(B) fixedly connecting the top connecting pieces of the connecting supports to the top connecting pieces of three corners of the integral building module; placing the bottom hooks of the connecting supports into the bottom lifting holes of the integral building module; then, fixedly connecting the top connecting piece of the independent connecting support to the top connecting piece of the integral building module;

(C) driving oil cylinders of four lifting devices by the console to ascend synchronously, and driving the four lifting supports, connecting supports, and the integral building module to ascend to 2-4 centimeters from the ground at the same time; installing the locating pins on the telescopic guide rods to locate the lifting supports;

(D) disposing a corresponding counterweight onto the anti-tilt device to maintain a balanced state relative to the ground until the integral building module completes an ascending action;

(E) placing the air cushion type transport device below the lifting device; after receiving compressed air, driving, by the installation device, the integral building module to ascend; at the same time, separating the self-walking device from a floor plane to cause the installation device to leave the ground and to be in an easily movable state;

(F) transporting the integral building module to a predetermined adjustment position by the air cushion type transport device; then, removing the independent connecting support; at the same time, adjusting the counterweight to maintain the balanced state of the integral building module with respect to the ground;

(G) transporting the integral building module to a sink installation position of a floor plane by the air cushion type transport device; then, cutting off supply of the compressed air to the air cushion type transport device to cause the universal wheels of the self-walking device to fall onto the floor plane, the locating being completed at this time;

(H) removing locating pins on the telescopic guide rods of the lifting devices;

controlling three oil cylinders to descend synchronously; descending the integral building module into the sink installation position of the floor plane; and

(I) disconnecting three top connecting pieces with the integral building module and releasing the bottom hooks; transporting the installation device away through the universal wheels of the self-walking device to complete an accurate in-place installation of the integral building module.

10. An installation method of the installation device for an integral building module of a building, said method comprises the steps of:

(A) according to a size and a height of an integral bathroom, controlling and adjusting a length of the telescopic arm of an adjustment device by a console to match with the integral bathroom; adjusting heights of top connecting pieces of connecting supports in a connecting device to match with the top connecting pieces of the integral bathroom; moving the installation device by the self-walking device to closely contact with the integral bathroom;

(B) fixedly connecting the top connecting pieces of the connecting supports to the top connecting pieces of three corners of the integral bathroom; placing bottom hooks of the connecting supports into bottom lifting holes of the integral bathroom; then, fixedly connecting the top connecting piece of the independent connecting support to the top connecting piece of the integral bathroom;

(C) placing a roller transport device below a lifting device, wherein a lower part of the roller transport device is provided with the walking wheels and an upper part of the roller transport device is provided with a rotary disk capable of rotating horizontally;

(D) driving the oil cylinders of four lifting devices by the console to ascend synchronously, so as to drive four lifting supports, four connecting supports and the integral bathroom to ascend to 2-4 centimeters from the ground at the same time; installing the locating pins on the telescopic guide rods to locate the lifting supports;

(E) disposing a corresponding counterweight onto the hook of the anti-tilt device to maintain a balanced state with respect to the ground until the integral bathroom completes an ascending action;

(F) transporting the integral bathroom to a predetermined adjusting position by the roller transport device; then, removing the independent connecting support; at the same time, adjusting the counterweight to maintain the balanced state of the integral bathroom with

respect to the ground;

(G) moving the integral bathroom to a sink installation position of a floor plane by the roller transport device to complete locating at this time;

(H) removing locating pins on the telescopic guide rods of the lifting device; controlling the three oil cylinders to descend synchronously; wherein the integral bathroom descends into the sink installation position of the floor plane;

(I) disconnecting three top connecting pieces with the integral bathroom and releasing the bottom hooks; transporting the installation device away through the universal wheels of the self-walking device, so that the accurate in-place installation of the integral bathroom is completed.

11. An installation method of the installation device for an integral building module of a building, said method comprises the steps of:

(A) according to a size and a height of an integral bathroom, controlling and adjusting a length of a telescopic arm of an adjustment device by a console to match with the integral bathroom; adjusting heights of the top connecting pieces of the connecting supports in the connecting device to match with the top connecting pieces of the integral bathroom; moving the installation device by a self-walking device to closely contact with the integral bathroom;

(B) fixedly connecting the top connecting pieces of the connecting supports to the top connecting pieces of three corners of the integral bathroom; placing the bottom hooks of the connecting supports into the bottom lifting holes of the integral bathroom; then, fixedly connecting the top connecting piece of the independent connecting support to the top connecting piece of the integral bathroom;

(C) driving the oil cylinders of four lifting devices by the console to ascend synchronously, so as to drive four lifting supports, four connecting supports, and the integral bathroom to ascend to 2-4 centimeters from the ground at the same time; installing the locating pins on the telescopic guide rods to locate the lifting supports;

(D) adjusting a lifting spiral structure of the top balancing device to cause the top universal wheel of the top balancing device to be against a roof, so as to maintain a balanced state with respect to the ground until the integral bathroom completes an ascending action;

(E) disposing the air cushion type transport device below the lifting device; after receiving the compressed air, moving the integral bathroom in an ascending manner by the

installation device; at this time, separating the self-walking device away from the floor plane to cause the installation device to leave the ground and to be in the easily movable state;

(F) transporting the integral bathroom to a predetermined adjusting position by the air cushion type transport device; then, removing the independent connecting support; at the same time, adjusting the top balancing device to cause the top universal wheel of the top balancing device to always maintain in a sliding contact with the roof along with a movement of the integral bathroom, thereby maintaining a balanced state of the integral bathroom with respect to the ground;

(G) moving the integral bathroom to the sink installation position of the floor plane by the air cushion type transport device; then, cutting off the compressed air of the air cushion type transport device to cause the universal wheels of the self-walking device to fall onto the floor plane, and to complete locating at this time;

(H) removing the locating pins from the telescopic guide rods of the lifting device; controlling three oil cylinders to descend synchronously; wherein the integral bathroom descends into the sink installation position of the floor plane;

(I) adjusting the lifting spiral structure of the top balancing device to release the contact between the top universal wheel of the top balancing device and the roof, disconnecting three top connecting pieces with the integral bathroom and releasing the bottom hooks; separating the installation device away through the universal wheels of the self-walking device, so that the accurate in-place installation of the integral bathroom is completed.

12. The installation device for the integral building module of the building according to claim 1, wherein the integral building module includes an integral bathroom or an internal kitchen.