

CLAIMS

1. A monitoring system suitable for a building comprising a plurality of real estate units, in which each real estate unit of said plurality of real estate units is provided with at least one local water supply pipeline and/or a local gas supply pipeline, in which all the
5 local water or gas supply pipelines of said real estate units branch off from a respective general water supply point or a respective general gas supply point, said monitoring system comprising:

installed in at least one real estate unit of that building, at least:

- a local gas leakage sensor and/or a local water leakage sensor, functionally
10 connected to the local gas supply pipeline and/or the local water supply pipeline, configured to generate respectively a local gas leakage alarm signal and/or a local water leakage alarm signal when it detects a leakage in the local gas and/or water supply pipeline, and configured to issue a local control signal when it receives a local interrogation signal,

15 - a local solenoid valve for closing the local gas supply pipeline and/or a local solenoid valve for closing the local water supply pipeline,

- a control device (CU) connected to the local gas leakage sensor and/or to the local water leakage sensor, to receive and forward the respective local gas and/or water leakage alarm signal outside the real estate unit, and connected to the local solenoid valve
20 for closing the local gas and/or water supply pipeline, configured to send said local interrogation signal to the local gas leakage sensor and/or to the local water leakage sensor, configured to receive said local control signal and to send outside the real estate unit a local malfunction alarm signal in case of non-reception of the local control signal, and configured to close / open the local solenoid valve;

25 installed in a common area on at least one floor of that building:

- a floor control unit (CP) in wireless communication with the control device (CU) of each real estate unit on the same floor, in which said control unit is configured to periodically send an interrogation floor signal to the control device (CU) of each real estate unit and to generate a malfunction alarm floor signal if it does not receive a control
30 floor signal from the control device (CU) following a sending of the interrogation floor signal, said floor control unit (CP) being configured to forward a gas leakage alarm floor

signal and/or water leakage alarm floor signal and malfunction alarm floor signal when received from the control device (CU) of a real estate unit of said real estate units said local gas and/or water leakage alarm signal respectively and said local malfunction alarm signal,

5 - a floor display connected to the floor control unit and visible in said common area of said floor, configured to signal and visually identify the real estate unit from whose control device (CU) the floor control unit has not received the local control signal, and to visually signal the real estate unit in which the local gas and/or water leakage alarm signal and/or the local malfunction alarm signal was generated;

10 installed in that building:

- a general solenoid valve for closing the general gas inflow point and/or a general solenoid valve for closing the general water supply point, in which the general gas and/or water supply point is configured to supply all local gas and/or water supply pipelines,

15 - a building control unit (CC) in communication with the floor control unit installed on each floor of said building, in which said building control unit (CC) is configured to periodically send a general interrogation signal to the floor control unit of each floor of the building and to generate a general malfunction signal if it does not receive a general control signal from the floor control unit of each floor in response to a
20 sending of the general interrogation signal, said building control unit (CC) also being configured to communicate a request help on a telephone network and/or Internet network outside the building and to close the general solenoid valve for closing the general gas supply point and/or the general solenoid valve for closing the general water supply point when it receives said gas and/or water leakage alarm floor signal and/or said gas leakage
25 signal respectively malfunction alarm signal and/or when it generates said general malfunction signal.

2. The system according to claim 1, further comprising a general gas leakage sensor and/or a general water leakage sensor, functionally connected to the general gas supply point and/or to the general water supply point, configured to generate a general
30 gas leakage alarm signal and/or a general water leakage alarm signal respectively when it detects a leakage at the general gas and/or water supply point, and configured to emit a

general control signal when receiving a general interrogation signal, wherein said building control unit (CC) is connected to the general gas leakage sensor and/or the general water leakage sensor, to receive the respective general alarm signal leakage of gas and/or water, and connected to the general solenoid valve for closing the general gas and/or water supply point, and it is also configured to send said general interrogation signal to the general gas leakage sensor and/or to the local water leakage sensor and to receive said general control signal, and is configured to close / open the general solenoid valve for closing the general gas supply point and/or the general solenoid valve for closing the general water supply point.

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10 3. The system according to one of the preceding claims, comprising:
installed in at least one real estate unit:

- a local smoke sensor, configured to respectively generate a local smoke alarm signal when it detects a smoke presence in the real estate unit, and configured to emit the local control signal when it receives the local interrogation signal;

15 wherein said control device (CU) is connected to the local smoke sensor, to receive the respective local smoke alarm signal, and is configured to send said local interrogation signal to the local smoke presence sensor and to receive said local control signal, and is configured to receive and forward the respective local smoke alarm signal outside the real estate unit;

20 wherein said floor control unit is configured to forward a smoke presence alarm floor signal when it receives said local smoke alarm signal from the control device (CU) of a real estate unit of said real estate units;

25 wherein said building control unit (CC) is configured to communicate said request for help on the telephone network and/or on the Internet network outside the building when it receives said smoke alarm floor signal.

4. The system according to one of the preceding claims, comprising:
installed in at least one real estate unit:

30 - a local display connected to the control device (CU) and visible in said real estate unit, configured to produce a visual signal when the local gas and/or water leakage alarm signal and/or local malfunction alarm signal is generated.

5. A method of monitoring a building comprising a plurality of real estate units, in which each real estate unit of said plurality of real estate units is provided with at least one local water supply pipeline and/or a local gas supply pipeline, in which all local water or gas pipelines of said real estate units branch off from a respective general water supply point or a respective general gas supply point, comprising the following operations:

providing and installing a monitoring system according to claim 1;

performing the following operations with said control device (CU) installed in at least one real estate unit:

10 UA-A) generating an acoustic / light signal in the real estate unit if the local gas leakage sensor and/or the local water leakage sensor generates the respective local alarm signal for a first period of time (time1),

15 UA-B) if the local alarm signal generated in step UA-A) remains active beyond a second time interval (time2) after said first time interval (time1) has elapsed, activating the local solenoid valve to close the respective local gas and/or water supply pipeline and forward the local gas and/or water leakage alarm signal generated by the respective sensor to the respective floor control unit (CP),

20 UA-C) if said local control signal has not yet been received when a third time interval (time3) has elapsed from the emission of a first local interrogation signal that remained unanswered, activating the local solenoid valve to close the respective gas and/or water supply pipeline and forward the local malfunction alarm signal to the respective floor control unit (CP);

carrying out the following operations with said floor control unit (CP) installed in a common area of at least one floor of the building:

25 P-A) signaling and visually identifying the real estate unit in which the local gas and/or water leakage alarm signal was generated from the control device (CU) of the respective floor, then forwarding to the building control unit (CC) the related gas and/or water leakage alarm floor signal,

30 P-B) signaling and visually identifying the real estate unit in which the local malfunction signal was generated, then forwarding the malfunction alarm floor signal to the building control unit (CC),

P-C) if said control plan signal has not yet been received when the third time interval (time3) has elapsed from the issue of a first unanswered interrogation floor signal, signaling and visually identifying the real estate unit from which control device (CU) the floor control unit has not received the control floor signal, therefore forwarding the relevant malfunction alarm floor signal to the building control unit (CC);

5 performing the following operations with said building control unit (CC) installed in said building:

C-A) as soon as said gas and/or water leakage alarm floor signal is received, activating the respective general solenoid valve to close the respective general gas and/or water supply point and communicating a request for help on the telephone network and/or on the Internet outside the building,

C-B) as soon as said malfunction alarm floor signal is received, activating the respective general solenoid valve to close at least one of the general gas and/or water supply points and communicate a request for help on the telephone network and/or on the Internet outside the building,

C-C) if said general control signal has not yet been received when a fourth time interval (time4) has elapsed from the emission of a first general interrogation signal which remains unanswered, activating the respective general solenoid valve to close at least one of the general gas and/or water supply point and communicating a request for help on the telephone network and/or on the Internet outside the building.

6. The method according to claim 5 further comprising the operations of:

providing and installing a monitoring system according to claim 2;

performing the following operations with said building control unit (CC) installed in said building:

25 C-D) as soon as said general gas and/or water leakage alarm signal is received, activating the respective general solenoid valve to close the respective general gas and/or water supply point and communicating a help request on telephone network and/or Internet network outside the building,

C-E) if said general control signal has not yet been received when a fifth time interval (time5) has elapsed from the emission of a first general interrogation signal which remains unanswered, activating the respective general solenoid valve to close the

respective general gas and/or water supply point and communicating a help request on the telephone network and/or on the Internet network outside the building.

7. The method according to claim 5 or 6 further comprising the operations of:
providing and installing a monitoring system according to claim 3;

5 performing the following operations with said control device (CU) installed in at least one real estate unit:

UA-D) generating an acoustic / light signal in the real estate unit if the local smoke sensor generates the respective local smoke alarm signal for said first time interval (time1),

10 UA-E) if the local alarm signal generated in step UA-D) remains active beyond a second time interval (time2) after said first time interval (time1) has elapsed, closing the respective local gas pipeline and forwarding the local smoke alarm signal generated by the respective sensor to the respective floor control unit (CP),

15 UA-F) if said local control signal has not yet been received when the third time interval (time3) has elapsed from the emission of a first local interrogation signal that remains unanswered, activating the local solenoid valve to close the respective local gas pipeline and forwarding the local malfunction alarm signal to the respective floor control unit (CP);

20 carrying out the following operations with said floor control unit (CP) installed in a common area of at least one floor of the building:

P-D) signaling and visually identifying the real estate unit in which the local smoke alarm signal was generated by the control device (CU) of the respective floor, then forwarding the relevant floor signal to the building control unit (CC) smoke alarm;

25 performing the following operations with said building control unit (CC) installed in said building:

C-F) as soon as said smoke alarm floor signal is received, activating the respective general solenoid valve to close the respective general gas supply point and communicating a help request on the telephone network and/or Internet network outside the building.

ABSTRACT

5 [Fig.]