

CLAIMS:

1. A hot water unit fluid supply control system comprising:
 - a switching device coupled to a hot water unit, a rainwater tank and a potable water source, the switching device configured to selectively switch between a first state, which allows fluid communication between the hot water unit and the rainwater tank, and a second state, which allows fluid communication between the hot water unit and the potable water source; and
 - a control unit configured to:
 - receive fluid characteristic information associated with fluid in the hot water unit from one or more sensors; and
 - cause the switching device to assume the first or second state based on a comparison of a fluid characteristic parameter of the fluid characteristic information with requirements of the hot water unit.
2. The hot water unit control system of claim 1, wherein the requirements comprise a fluid characteristic threshold value and the control unit is configured to cause the switching device to assume the first state in response to determining that the fluid characteristic parameter is greater than the fluid characteristic threshold value and to assume the second state in response to determining that the fluid characteristic parameter is less than the fluid characteristic threshold value.
3. The hot water unit control system of claim 1 or claim 2, wherein the switching device is configured to switch between the first and second states in response to detecting a pressure change in fluid supply from the rainwater tank.
4. The hot water unit control system of any one of the preceding claims, wherein the control unit is configured to activate a pump of the rainwater tank to cause the switching device to assume the first state and to deactivate a pump of the rainwater tank to cause the switching device to assume the second state.

5. The hot water unit fluid supply control system of any one of the preceding claims, wherein the switching device comprises an automatic hydraulic switch.
6. The hot water unit fluid supply control system of any one of the preceding claims, wherein the switching device comprises:
 - a first inlet coupled to a first conduit arranged to convey fluid from the potable water source to the switching device;
 - a second inlet coupled to a second conduit arranged to convey fluid from the rainwater tank to the switching device; and
 - an outlet coupled to a third conduit arranged to convey fluid from the switching device to the hot water unit.
7. The hot water unit fluid supply control system of any one of the preceding claims, wherein at least one of the one or more sensors is configured to detect fluid temperature in the hot water unit and wherein the fluid characteristic parameter comprises a temperature value.
8. The hot water unit fluid supply control system of any one of the preceding claims, wherein at least one of the one or more sensors is configured to detect flow rate of fluid exiting the hot water unit and wherein the fluid characteristic parameter comprises at least one of a flow rate value and a fluid volume value.
9. The hot water unit fluid supply control system of any one of the preceding claims, wherein at least one of the one or more sensors is configured to detect a measure of water quality of fluid in the hot water unit and wherein the fluid characteristic parameter comprises a water quality value.
10. The hot water unit fluid supply control system of any one of the preceding claims, wherein at least one of the one or more sensors is configured to detect operations information associated with an ultraviolet (UV) treatment unit and wherein the control unit is configured to cause the switching device to assume the first or

second state based on a comparison of an operations parameter of the operations information with an operations threshold value.

11. The hot water unit fluid supply control system of claim 10, wherein the operations parameter comprises an indication of whether the UV treatment unit is operating effectively.

12. The hot water unit fluid supply control system of claim 10 or 11, wherein the control unit is configured to cause the switching device to assume the first state in response to determining that the operations parameter is greater than the operations threshold value and to assume the second state in response to determining that the operations parameter is less than the operations threshold value.

13. The hot water unit fluid supply control system of any one of claims 10 to 12, wherein the UV treatment unit is disposed upstream of the hot water unit and downstream of the switching device such that fluid conveyed from the rainwater tank or potable water source passes through the UV treatment unit before being conveyed to the hot water unit.

14. The hot water unit fluid supply control system of any one of claims 10 to 13, further comprising the UV treatment unit.

15. The hot water unit fluid supply control system of any one of the preceding claims, further comprising one or more of the hot water unit, the rainwater tank and the one or more sensors.

16. A hot water unit fluid supply control system comprising:
a switching device coupled to a hot water unit, a rainwater tank and a potable water source, the switching device configured to selectively switch between a first state, which allows fluid communication between the hot water unit and the rainwater

tank, and a second state, which allows fluid communication between the hot water unit and the potable water source; and

a control unit configured to:

receive operations information associated with an ultraviolet (UV) treatment unit in fluid communication with the hot water unit from one or more sensors; and

cause the switching device to assume the first or second state based on a comparison of an operations parameter of the operations information with requirements of the hot water unit.

17. The hot water unit fluid supply control system of claim 16, wherein the requirements comprise an operations threshold value the control unit is configured to cause the switching device to assume the first state in response to determining that the operations parameter is greater than the threshold value and to assume the second state in response to determining that the operations parameter is less than the operations threshold value.

18. The hot water unit fluid supply control system of claim 15 or claim 16, wherein the switching device is configured to switch between the first and second states in response to detecting a pressure change in fluid supply from the rainwater tank.

19. The hot water unit fluid supply control system of any one of claims 15 to 18, wherein the control unit is configured to activate a pump of the rainwater tank to cause the switching device to assume the first state and to deactivate a pump of the rainwater tank to cause the switching device to assume the second state.

20. The hot water unit fluid supply control system of any one of claims 15 to 19, wherein the switching device comprises an automatic hydraulic switch.

21. The hot water unit fluid supply control system of any one of claims 15 to 20, wherein the switching device comprises:

a first inlet coupled to a first conduit arranged to convey fluid from the potable water source to the switching device;

a second inlet coupled to a second conduit arranged to convey fluid from the rainwater tank to the switching device; and

an outlet coupled to a third conduit arranged to convey fluid from the switching device to the hot water unit.

22. The hot water unit fluid supply control system of any one of claims 15 to 21, wherein the operations parameter comprises an indication of whether the UV treatment unit is operating effectively.

23. The hot water unit fluid supply control system of any one of claims 15 to 22, wherein the UV treatment unit is disposed upstream of the hot water unit and downstream of the switching device such that fluid conveyed from the rainwater tank or potable water source passes through the UV treatment unit before being conveyed to the hot water unit.

24. The hot water unit fluid supply control system of any one of claims 15 to 23, further comprising the UV treatment unit.

25. The hot water unit fluid supply control system of any one of the preceding claims, wherein the one or more sensors are configured to detect fluid characteristic information associated with fluid in the hot water unit; and wherein the control unit is configured to cause the switching device to assume the first or second state based on a comparison of a fluid characteristic parameter of the fluid characteristics information with a fluid characteristic threshold value.

26. The hot water unit fluid supply control system of claim 25, wherein the control unit is configured to cause the switching device to assume the first state in response to determining that the fluid characteristics parameter is greater than the fluid characteristic threshold value and to assume the second state in response to determining

that the fluid characteristics parameter is less than the fluid characteristic threshold value.

27. The hot water unit fluid supply control system of claim 25 or 26, wherein at least one of the one or more sensors is configured to detect fluid temperature in the hot water unit and wherein the fluid characteristic parameter comprises a temperature value.

28. The hot water unit fluid supply control system of any one of claims 25 to 27, wherein at least one of the one or more sensors is configured to detect flow rate of fluid exiting the hot water unit and wherein the fluid characteristic parameter comprises at least one of a flow rate value and a fluid volume value.

29. The hot water unit fluid supply control system of any one of claims 25 to 28, wherein at least one of the one or more sensors is configured to detect a measure of water quality of fluid in the hot water unit and wherein the fluid characteristic parameter comprises a water quality value.

30. The hot water unit fluid supply control system of any one of claims 25 to 29, further comprising one or more of the hot water unit, the rainwater tank, the UV treatment unit and the one or more sensors.

31. A method of controlling fluid supply to a hot water unit, the method operable by a hot water unit control system comprising a switching device coupled to the hot water unit, a rainwater tank and a potable water source, wherein the switching device is configured to selectively switch between a first state, which allows fluid communication between the hot water unit and the rainwater tank, and a second state, which allows fluid communication between the hot water unit and the potable water source, and a control unit, the method comprising:

receiving, by the control unit, fluid characteristic information associated with fluid in the hot water unit from one or more sensors; and

causing, by the control unit, the switching device to assume the first state or the second state based on a comparison of a fluid characteristic parameter of the fluid characteristic information with requirements of the hot water unit.

32. The method of claim 31, wherein the requirements comprise a fluid characteristic threshold value and wherein causing the switching device to assume the first state or the second state comprises causing the switching device to assume the first state in response to determining that the fluid characteristic parameter of the fluid characteristic information is greater than the fluid characteristic threshold value and causing the switching device to assume the second state in response to determining that a parameter of the fluid characteristic information is less than the fluid characteristic threshold value.

33. The method of claim 31 or claim 32, wherein the switching device is configured to switch between the first and second states in response to detecting a pressure change in fluid supply from the rainwater tank.

34. The method of claim 33, wherein causing the switching device to assume the first state or the second state comprises causing a pressure change in fluid supply from the rainwater tank to cause the switching device to switch between the first and second states.

35. The method of claim 33 or 34, wherein causing the switching device to assume the first state comprises activating a pump of the rainwater tank.

36. The method of any one of claims 33 to 35, wherein causing the switching device to assume the second state comprises deactivating a pump of the rainwater tank.

37. The method of any one of claims 31 to 36, wherein at least one of the one or more sensors is configured to detect fluid temperature in the hot water unit and wherein the parameter of the fluid characteristic information comprises a temperature value.

38. The method of any one of claims 31 to 37, wherein at least one of the one or more sensors is configured to detect flow rate of fluid exiting the hot water unit and wherein the parameter of the fluid characteristic information comprises at least one of a flow rate value and a fluid volume value.

39. The method of any one of claims 31 to 38, wherein at least one of the one or more sensors is configured to detect a measure of water quality of fluid in the hot water unit and wherein the fluid characteristic parameter comprises a water quality value.

40. The method of any one of claims 31 to 39, wherein at least one of the one or more sensors is configured to detect operations information associated with the UV treatment unit and the method further comprises causing the switching device to assume the first or second state based on a comparison of an operations parameter of the operations information with an operations threshold value.

41. The method of claim 40, wherein the operations parameter comprises an indication of whether the UV treatment unit is operating effectively.

42. A method of controlling fluid supply to a hot water unit, the method operable by a hot water unit control system comprising a switching device coupled to a hot water unit, a rainwater tank and a potable water source, wherein the switching device is configured to selectively switch between a first state, which allows fluid communication between the hot water unit and the rainwater tank, and a second state, which allows fluid communication between the hot water unit and the potable water source, and a control unit, the method comprising:

receiving, by the control unit, operations information associated with an ultraviolet (UV) treatment unit in fluid communication with the hot water unit from one or more sensors; and

causing, by the control unit, the switching device to assume the first state or the second state based on a comparison of an operations parameter of the operations information with requirements of the hot water unit.

43. The method of claim 42, wherein the requirements comprise an operations threshold value and wherein causing the switching device to assume the first state or the second state comprises causing the switching device to assume the first state in response to determining that the operations parameter of the operations information is greater than the operations threshold value and causing the switching device to assume the second state in response to determining that the operations parameter of the operations information is less than the operations threshold value.

44. The method of claim 42 or claim 43, wherein the switching device is configured to switch between the first and second states in response to detecting a pressure change in fluid supply from the rainwater tank.

45. The method of claim 44, wherein causing the switching device to assume the first state or the second state comprises causing a pressure change in fluid supply from the rainwater tank to cause the switching device to switch between the first and second states.

46. The method of claim 44 or 45, wherein causing the switching device to assume the first state comprises activating a pump of the rainwater tank.

47. The method of any one of claims 44 to 46, wherein causing the switching device to assume the second state comprises deactivating a pump of the rainwater tank.

48. The method of any one of claims 42 to 47, wherein the operations parameter comprises an indication of whether the UV treatment unit is operating effectively.

49. The method of any one of claims 42 to 48, wherein the one or more sensors are configured to detect fluid characteristic information associated with fluid in the hot water unit; and wherein the control unit is configured to cause the switching device to assume the first or second state based on a comparison of a fluid characteristic parameter of the fluid characteristics information with a fluid characteristic threshold value.

50. The method of claim 49, wherein causing the switching device to assume the first state or the second state comprises causing the switching device to assume the first state in response to determining that the fluid characteristic parameter of the fluid characteristic information is greater than the fluid characteristic threshold value and causing the switching device to assume the second state in response to determining that a parameter of the fluid characteristic information is less than the fluid characteristic threshold value.

51. The method of claim 49 or 50, wherein at least one of the one or more sensors is configured to detect fluid temperature in the hot water unit and wherein the fluid characteristic parameter comprises a temperature value.

52. The method of any one of claims 49 to 51, wherein at least one of the one or more sensors is configured to detect flow rate of fluid exiting the hot water unit and wherein the fluid characteristic parameter comprises at least one of a flow rate value and a fluid volume value.

53. The method of any one of claims 49 to 52, wherein at least one of the one or more sensors is configured to detect a measure of water quality of fluid in the hot water unit and wherein the fluid characteristic parameter comprises a water quality value.

54. A method of controlling fluid supply to a hot water unit at an installation, the method operable by a hot water unit control system comprising a switching device coupled to the hot water unit, a rainwater tank and a potable water source, wherein the

switching device is configured to selectively switch between a first state, which allows fluid communication between the hot water unit and the rainwater tank, and a second state, which allows fluid communication between the hot water unit and the potable water source, and a control unit, the method comprising:

receiving, by the control unit, fluid characteristic information associated with fluid in the hot water unit from one or more sensors, wherein the fluid characteristic information is indicative of a volume of usable water in the hot water unit;

determining, from a usage pattern associated with the installation, a predicted volume of water required in a timeframe; and

causing, by the control unit, the switching device to assume the first state or the second state based on a comparison of the volume of usable water with the predicted volume of water required for the timeframe.

55. The method of claim 54, wherein the timeframe is associated with a particular time period of a day.

56. The method of claim 53 or 54, wherein causing the switching device to assume the first state or the second state comprises causing the switching device to assume the first state in response to determining that the volume of usable water is greater than the predicted volume of water required and causing the switching device to assume the second state in response to determining that the volume of usable water is not greater than the predicted volume of water required.

57. The method of any one of claims 54 to 56, wherein the switching device is configured to switch between the first and second states in response to detecting a pressure change in fluid supply from the rainwater tank.

58. The method of claim 58, wherein causing the switching device to assume the first state or the second state comprises causing a pressure change in fluid supply from

the rainwater tank to cause the switching device to switch between the first and second states.

59. The method of claim 57 or 58, wherein causing the switching device to assume the first state comprises activating a pump of the rainwater tank.

60. The method of any one of claims 57 to 59, wherein causing the switching device to assume the second state comprises deactivating a pump of the rainwater tank.

61. The method of any one of claims 54 to 60, wherein at least one of the one or more sensors is configured to detect fluid temperature in the hot water unit and wherein the fluid characteristic information comprises a temperature value.

62. The method of any one of claims 54 to 61, wherein at least one of the one or more sensors is configured to detect flow rate of fluid exiting the hot water unit and wherein the fluid characteristic information comprises at least one of a flow rate value and a fluid volume value.

63. The method of any one of claims 54 to 62, wherein at least one of the one or more sensors is configured to detect a measure of water quality of fluid in the hot water unit and wherein the fluid characteristic parameter comprises a water quality value.

64. The method of any one of claims 54 to 63, wherein the control unit is configured to determine a usage pattern associated with the installation by storing usage information associated with the installation over a period of time, wherein the usage pattern comprises a plurality of usage entries, wherein each usage entry comprising fluid characteristic information indicative of a volume of usable water in the hot water unit for a timeframe.

65. The method of claim 64, wherein the control unit is configured to update the usage pattern periodically or in response to receiving fluid characteristic information associated with fluid in the hot water unit from one or more sensors.

66. The method of any one of claims 54 to 63, wherein the control unit is configured to receive a usage pattern associated with the installation from a remote server, and wherein the control unit is configured to provide to the remote server is usage information associated with the installation over a period of time, wherein the usage information comprises a plurality of usage entries, wherein each usage entry comprising fluid characteristic information indicative of a volume of usable water in the hot water unit for a timeframe.

67. A hot water unit fluid supply control system comprising:
a switching device coupled to a hot water unit, a rainwater tank and a potable water source associated with an installation, the switching device configured to selectively switch between a first state, which allows fluid communication between the hot water unit and the rainwater tank, and a second state, which allows fluid communication between the hot water unit and the potable water source; and
a control unit configured to perform the method of any one of claims 54 to 66.