What is claimed is:

1. A system for sampling air at multiple locations in a controlled environment comprising:

a plurality of air sampling devices configured to monitor and test a volume of air within a controlled environment;

a plurality of vacuum connections, each of the plurality of vacuum connections configured to receive the volume of air from one of the plurality of air sampling devices;

a plurality of flow control valves, each of the plurality of flow control valves configured to control a mass flow rate of the volume of air received by one of the vacuum connections;

a plurality of flow sensors, each of the plurality of flow sensors configured to sense the mass flow rate of the volume of air received by one of the vacuum connections;

a flow center including a programmable logic controller (PLC) configured to monitor and control the mass flow rate of air received by the plurality of vacuum connections; and

an operator interface terminal including a graphical user interface (GUI) configured to monitor and control the mass flow rate of air received by the plurality of vacuum connections.

2. The system of Claim 1, wherein the PLC is further configured to:

receive setpoints indicative of desired mass flow rates of the plurality of vacuum connections;

store the setpoints;

receive, from the plurality of flow sensors, measured flow rates indicative of the mass flow rates of each of the vacuum connections;

determine errors indicative of the differences between the measured flow rates and the setpoints;

output control signals to a plurality of actuators, each of the plurality of actuators configured to open and close one of the flow control valves, to reduce the differences between the measured flow rates and the setpoints.

3. The system of Claim 2, wherein the each of the flow control valves are configured to adjust such that a change in position of the flow control valve is proportional to the size of the difference between the set point and the measured flow rate of the vacuum connection corresponding to the respective flow control valve.

4. The system of Claim 2, wherein the each of the flow control valves are configured to open and close such that a rate of change in position of the flow control valve is proportional to a rate of change of the measured flow rate of the vacuum connection corresponding to the respective flow control valve.

5. The system of Claim 1, wherein the system is configured to output data indicative of the mass flow rates of the volumes of air received by the plurality of vacuum connections to an external device via a network connection.

6. The system of Claim 5, wherein the external device is a supervisory control and data acquisition system or data collection system.

7. The system of Claim 5, wherein the network connection includes communication via the internet and the external device receives the data via a web browser or remote desktop application.

8. The system of Claim 1, wherein the system is configured to control the mass flow rates of the volume of air received by one of the plurality of vacuum connections based on a setpoint received from an external device.

9. The system of Claim 1, control the mass flow rates of the volume of air received by one of the plurality of vacuum connections based on a setpoint received from a web browser or remote desktop application via the internet.

10. The system of Claim 1, wherein each of the plurality of vacuum connections is in flow communication with a vacuum pump via a manifold, the vacuum pump is configured to draw the volume of air from the plurality of air sampling devices.

11. The system of Claim 10, wherein the vacuum pump further comprises a contactor configured to deliver and control power to the vacuum pump, the contactor comprising an emergency stop button configured to disconnect the power to the vacuum pump.

12. The system of Claim 10, wherein the graphical user interface comprises an emergency stop button configured to disconnect power to the vacuum pump.

13. The system of Claim 10, wherein the system is configured to disconnect power to the vacuum pump in response to a determination that the mass flow rate of the volume of air received by one of the vacuum connections in flow communication to the vacuum pump is below a predetermined threshold.

14. The system of Claim 1, wherein the operator interface terminal is co-located with the flow center.

15. The system of Claim 1, wherein the operator interface terminal is co-located with one of the plurality of air sampling devices.

16. A method for sampling air at multiple locations in a controlled environment comprising:

monitoring and testing, by a plurality of air sampling devices, volumes of air within a controlled environment;

receiving, by a plurality of vacuum connections, the volumes of air from each of the plurality of air sampling devices;

controlling, by a plurality of flow control valves, mass flow rates of the volumes of air received by each of the vacuum connections;

sensing, by a plurality of flow sensors, the mass flow rates of the volumes of air received by each of the vacuum connections;

monitoring, by a flow center including a programmable logic controller (PLC), the mass flow rates of air received by each of the plurality of vacuum connections;

outputting, to an operator interface terminal including a graphical user interface (GUI), data indicative of the mass flow rates of air received by each of the plurality of vacuum connections;

receiving, from the operator interface terminal via the GUI, a setpoint indicative of a desired mass flow rate of one of the plurality of vacuum connections; and

controlling the mass flow rate of air received by one of the plurality of vacuum connections based on the setpoint.

17. The method of Claim 16, further comprising:

receiving setpoints indicative of desired mass flow rates of the plurality of vacuum connections;

storing the setpoints;

receiving, from the plurality of flow sensors, measured flow rates indicative of the mass flow rates of the vacuum connections;

determining errors indicative of the differences between the measured flow rates and the setpoints;

outputting control signals to a plurality of actuators, each of the plurality of actuators configured to open and close one of the flow control valves, to reduce the differences between the measured flow rates and the setpoints.

18. The method of Claim 17, further comprising

adjusting each of the flow control valves such that a change in position of the flow control valve is proportional to the size of the difference between the set point and the measured flow rate of the vacuum connection corresponding to the respective flow control valve.

19. The method of Claim 18, further comprising:

adjusting each of the flow control valves such that the change in position of the flow control valve is proportional to a rate of change of the difference between the set point and the measured flow rate of the vacuum connection corresponding to the respective flow control valve.

20. The method of Claim 16, further comprising:

outputting data indicative of the mass flow rates of the volumes of air received by the plurality of vacuum connections to an external device via a network connection.

21. The method of Claim 16, further comprising:

outputting data indicative of the mass flow rates of the volumes of air received by the plurality of vacuum connections to a supervisory control and data acquisition system or data collection system.

22. The method of Claim 16, further comprising:

outputting data indicative of the mass flow rates of the volumes of air received by the plurality of vacuum connections to an external device via a web browser or remote desktop application.

23. The method of Claim 16, further comprising:

controlling the mass flow rates of the volume of air received by one of the plurality of vacuum connections based on a setpoint received from an external device.

24. The method of Claim 16, further comprising:

controling the mass flow rates of the volume of air received by one of the plurality of vacuum connections based on a setpoint received from a web browser or remote desktop application via the internet.

25. The method of Claim 16, wherein the monitoring and testing the volumes of air within a controlled environment further comprises:

drawing, by a vacuum pump via a manifold, the volumes of air from the plurality of air sampling devices through the plurality of vacuum connections.

26. The method of Claim 25, further comprising:

delivering and controlling power to the vacuum pump via a contactor comprising an emergency stop button, the emergency stop button configured to disconnect the power to the vacuum pump.

27. The method of Claim 28, providing, as part of the graphical user interface, an emergency stop button configured to disconnect power to the vacuum pump.

28. The method of Claim 28, further comprising:

disconnecting power to the vacuum pump in response to a determination that the mass flow rate of the volume of air received by one of the vacuum connections in flow communication to the vacuum pump is below a predetermined threshold.

29. The method of Claim 18, wherein the operator interface terminal is co-located with the flow center.

30. The method of Claim 18, wherein the operator interface terminal is co-located with one of the plurality of air sampling devices.

What is claimed is:

1. A system for sampling air at multiple locations in a controlled environment comprising:

a plurality of air sampling devices configured to monitor and test a volume of air within a controlled environment;

a plurality of vacuum connections, each of the plurality of vacuum connections configured to receive the volume of air from one of the plurality of air sampling devices;

a plurality of flow control valves, each of the plurality of flow control valves configured to control a mass flow rate of the volume of air received by one of the vacuum connections;

a plurality of flow sensors, each of the plurality of flow sensors configured to sense the mass flow rate of the volume of air received by one of the vacuum connections;

a flow center including a programmable logic controller (PLC) configured to monitor and control the mass flow rate of air received by the plurality of vacuum connections; and

an operator interface terminal including a graphical user interface (GUI) configured to monitor and control the mass flow rate of air received by the plurality of vacuum connections.

2. The system of Claim 1, wherein the PLC is further configured to:

receive setpoints indicative of desired mass flow rates of the plurality of vacuum connections;

store the setpoints;

receive, from the plurality of flow sensors, measured flow rates indicative of the mass flow rates of each of the vacuum connections;

determine errors indicative of the differences between the measured flow rates and the setpoints;

output control signals to a plurality of actuators, each of the plurality of actuators configured to open and close one of the flow control valves, to reduce the differences between the measured flow rates and the setpoints.

3. The system of Claim 2, wherein the each of the flow control valves are configured to adjust such that a change in position of the flow control valve is proportional to the size of the difference between the set point and the measured flow rate of the vacuum connection corresponding to the respective flow control valve.

4. The system of Claim 2, wherein the each of the flow control valves are configured to open and close such that a rate of change in position of the flow control valve is proportional to a rate of change of the measured flow rate of the vacuum connection corresponding to the respective flow control valve.

5. The system of Claim 1, wherein the system is configured to output data indicative of the mass flow rates of the volumes of air received by the plurality of vacuum connections to an external device via a network connection.

6. The system of Claim 5, wherein the external device is a supervisory control and data acquisition system or data collection system.

7. The system of Claim 5, wherein the network connection includes communication via the internet and the external device receives the data via a web browser or remote desktop application.

8. The system of Claim 1, wherein the system is configured to control the mass flow rates of the volume of air received by one of the plurality of vacuum connections based on a setpoint received from an external device.

9. The system of Claim 1, wherein the system is configured to control the mass flow rates of the volume of air received by one of the plurality of vacuum connections based on a setpoint received from a web browser or remote desktop application via the internet.

10. The system of Claim 1, wherein each of the plurality of vacuum connections is in flow communication with a vacuum pump via a manifold, the vacuum pump is configured to draw the volume of air from the plurality of air sampling devices.

11. The system of Claim 10, wherein the vacuum pump further comprises a contactor configured to deliver and control power to the vacuum pump, the contactor comprising an emergency stop button configured to disconnect the power to the vacuum pump.

12. The system of Claim 10, wherein the graphical user interface comprises an emergency stop button configured to disconnect power to the vacuum pump.

13. The system of Claim 10, wherein the system is configured to disconnect power to the vacuum pump in response to a determination that the mass flow rate of the volume of air received by one of the vacuum connections in flow communication to the vacuum pump is below a predetermined threshold.

14. The system of Claim 1, wherein the operator interface terminal is co-located with the flow center.

15. The system of Claim 1, wherein the operator interface terminal is co-located with one of the plurality of air sampling devices.

16. A method for sampling air at multiple locations in a controlled environment comprising:

monitoring and testing, by a plurality of air sampling devices, volumes of air within a controlled environment;

receiving, by a plurality of vacuum connections, the volumes of air from each of the plurality of air sampling devices;

controlling, by a plurality of flow control valves, mass flow rates of the volumes of air received by each of the vacuum connections;

sensing, by a plurality of flow sensors, the mass flow rates of the volumes of air received by each of the vacuum connections;

monitoring, by a flow center including a programmable logic controller (PLC), the mass flow rates of air received by each of the plurality of vacuum connections;

outputting, to an operator interface terminal including a graphical user interface (GUI), data indicative of the mass flow rates of air received by each of the plurality of vacuum connections;

receiving, from the operator interface terminal via the GUI, a setpoint indicative of a desired mass flow rate of one of the plurality of vacuum connections; and

controlling the mass flow rate of air received by one of the plurality of vacuum connections based on the setpoint.

17. The method of Claim 16, further comprising:

receiving setpoints indicative of desired mass flow rates of the plurality of vacuum connections;

storing the setpoints;

receiving, from the plurality of flow sensors, measured flow rates indicative of the mass flow rates of the vacuum connections;

determining errors indicative of the differences between the measured flow rates and the setpoints;

outputting control signals to a plurality of actuators, each of the plurality of actuators configured to open and close one of the flow control valves, to reduce the differences between the measured flow rates and the setpoints.

18. The method of Claim 17, further comprising:

adjusting each of the flow control valves such that a change in position of the flow control valve is proportional to the size of the difference between the set point and the measured flow rate of the vacuum connection corresponding to the respective flow control valve.

19. The method of Claim 18, further comprising:

adjusting each of the flow control valves such that the change in position of the flow control valve is proportional to a rate of change of the difference between the set point and the measured flow rate of the vacuum connection corresponding to the respective flow control valve.

20. The method of Claim 16, further comprising:

outputting data indicative of the mass flow rates of the volumes of air received by the plurality of vacuum connections to an external device via a network connection.

21. The method of Claim 16, further comprising:

outputting data indicative of the mass flow rates of the volumes of air received by the plurality of vacuum connections to a supervisory control and data acquisition system or data collection system.

22. The method of Claim 16, further comprising:

outputting data indicative of the mass flow rates of the volumes of air received by the plurality of vacuum connections to an external device via a web browser or remote desktop application.

23. The method of Claim 16, further comprising:

controlling the mass flow rates of the volume of air received by one of the plurality of vacuum connections based on a setpoint received from an external device.

24. The method of Claim 16, further comprising:

controlling the mass flow rates of the volume of air received by one of the plurality of vacuum connections based on a setpoint received from a web browser or remote desktop application via the internet.

25. The method of Claim 16, wherein the monitoring and testing the volumes of air within a controlled environment further comprises:

drawing, by a vacuum pump via a manifold, the volumes of air from the plurality of air sampling devices through the plurality of vacuum connections.

26. The method of Claim 25, further comprising:

delivering and controlling power to the vacuum pump via a contactor comprising an emergency stop button, the emergency stop button configured to disconnect the power to the vacuum pump.

27. The method of Claim 26, providing, as part of the graphical user interface, an emergency stop button configured to disconnect power to the vacuum pump.

28. The method of Claim 26, further comprising:

disconnecting power to the vacuum pump in response to a determination that the mass flow rate of the volume of air received by one of the vacuum connections in flow communication to the vacuum pump is below a predetermined threshold.

29. The method of Claim 16, wherein the operator interface terminal is co-located with the flow center.

30. The method of Claim 16, wherein the operator interface terminal is co-located with one of the plurality of air sampling devices.