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**Airflow VAV Controllers and Monitors
for
FUME HOODS
LABS / CLEAN ROOMS
EXHAUST / SUPPLY AIR SYSTEMS**

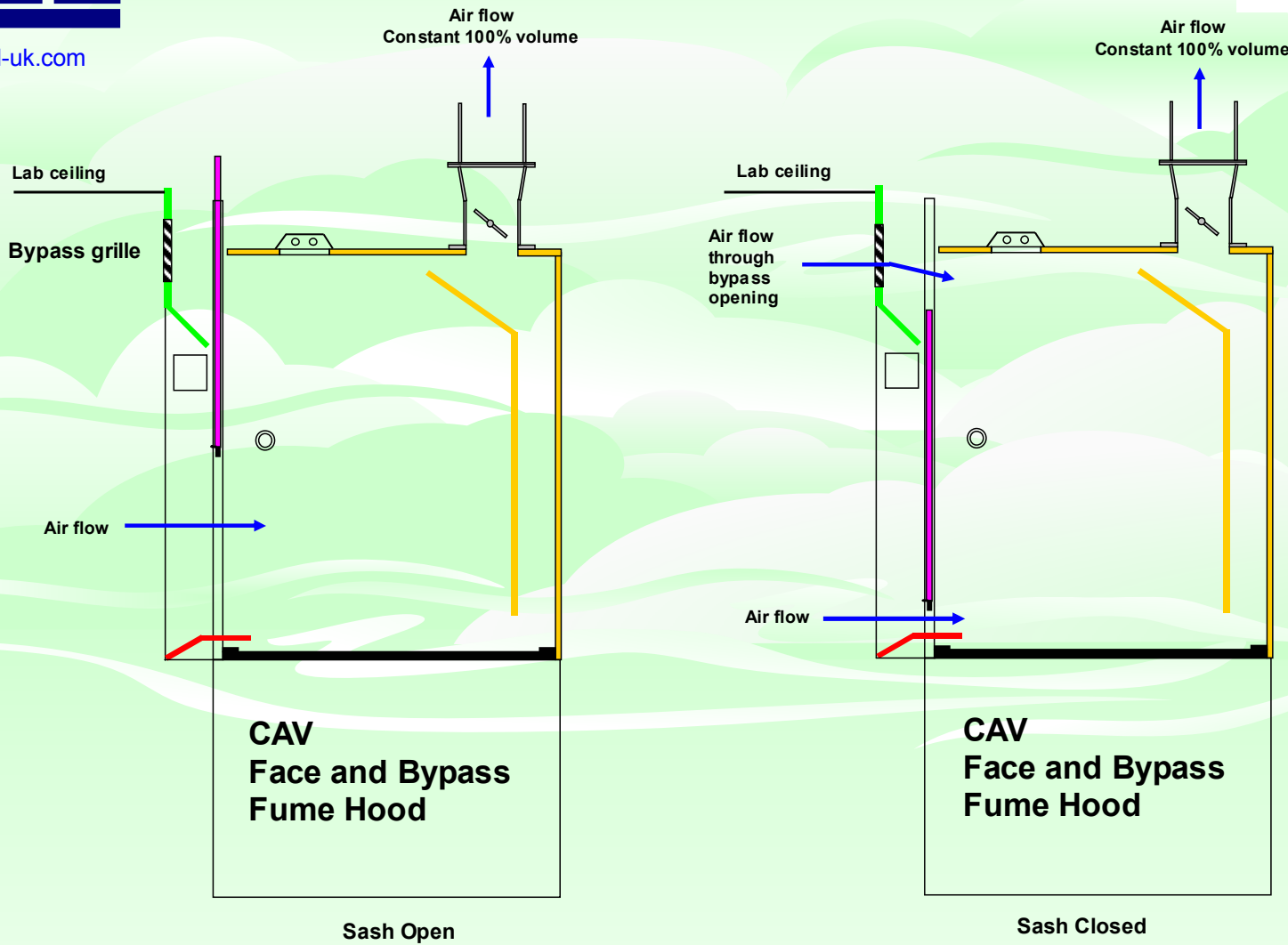
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12612 Elgin Terrace
Bradenton, FL 34202

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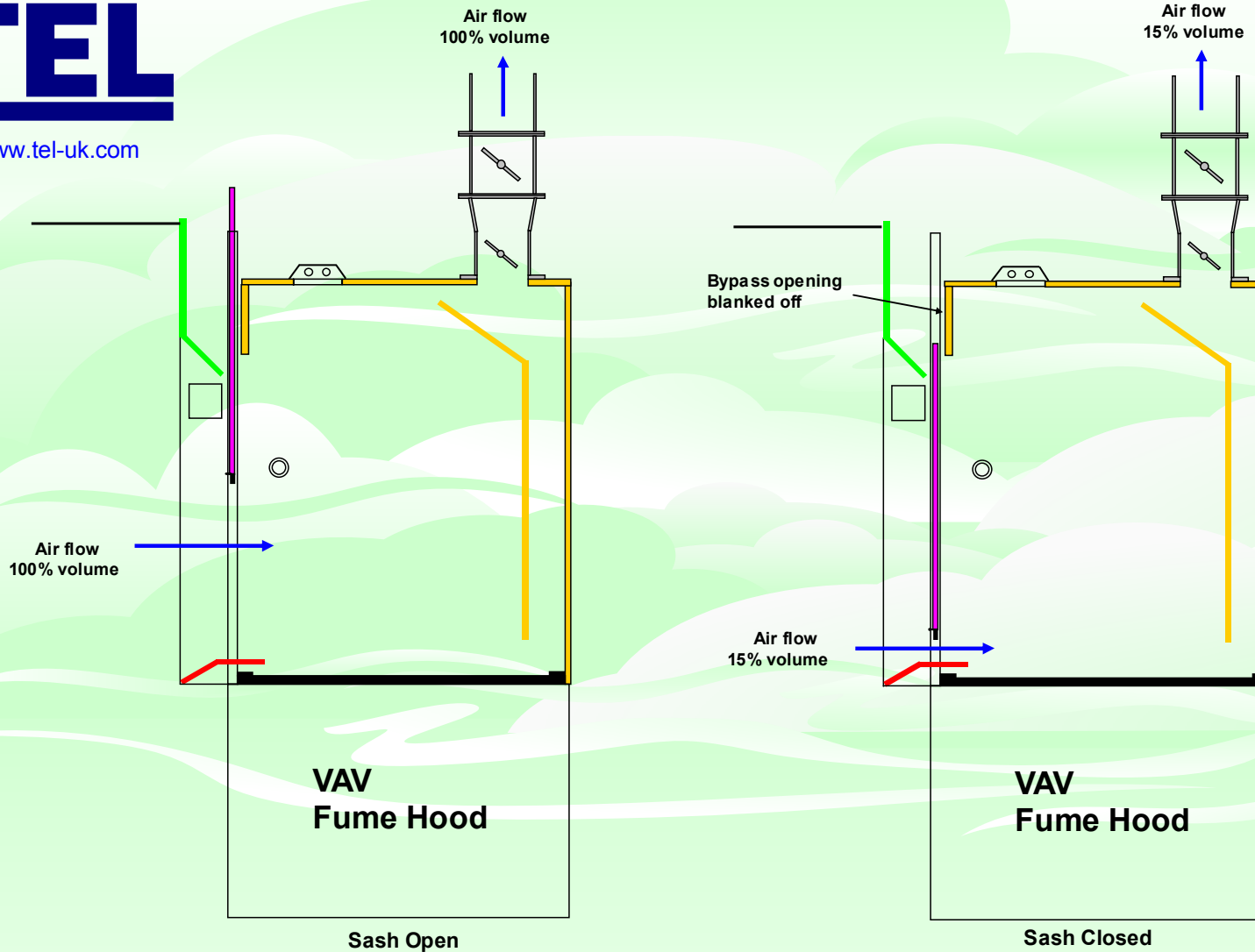
Fax: 262-364-3078

Email: info@GreenEnergyHoods.com



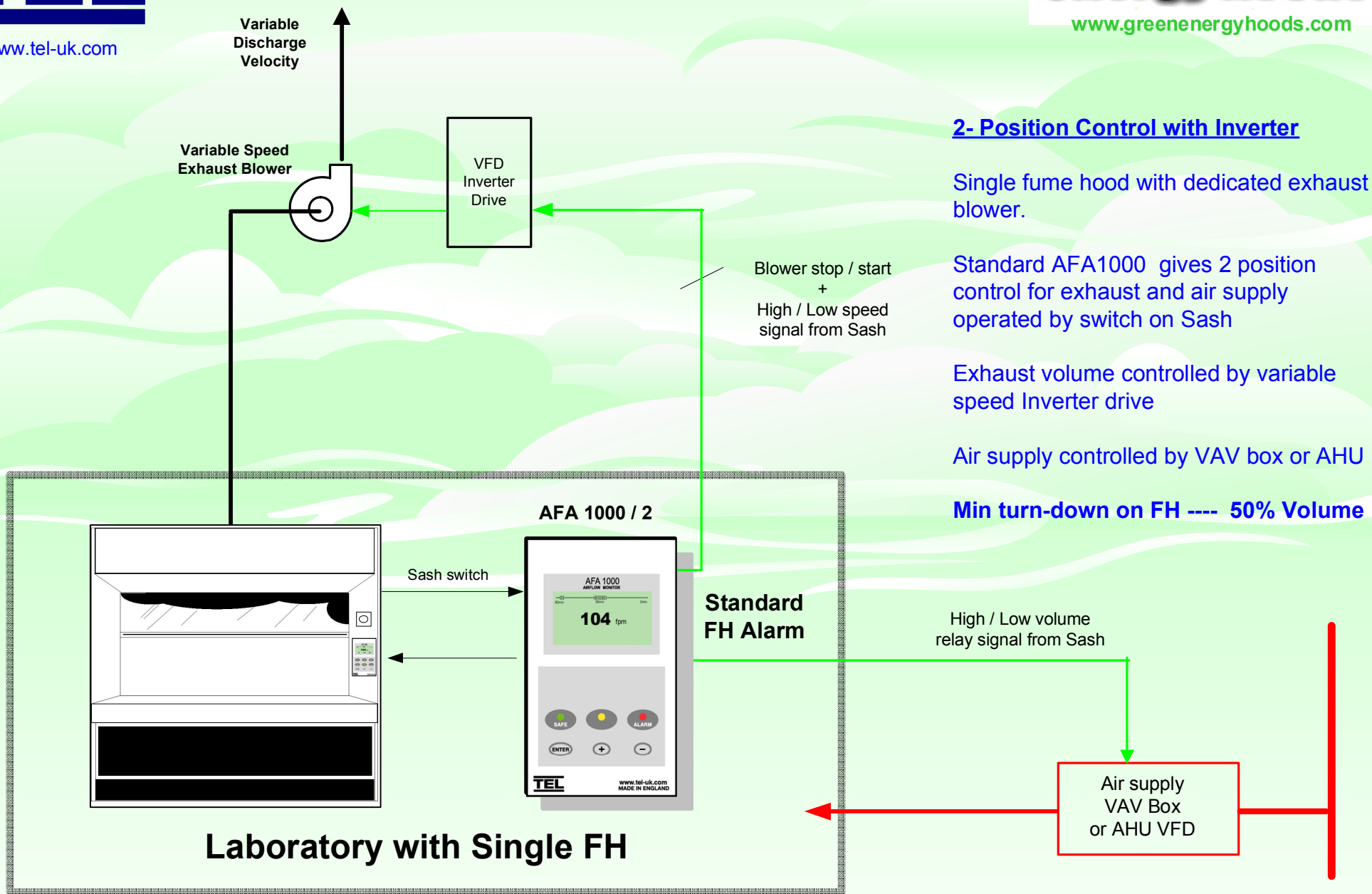
Constant Air Volume (CAV) Fume Hood

The vast majority of Fume Hoods operating in laboratories are face and bypass fume hoods as shown above. Opening or closing the Sash will have no effect on the volume being exhausted through the Fume Hood. The exhaust volume will remain constant at all times therefore the make-up Air Supply to the lab will also remain constant at all times



Variable Air Volume (VAV) Fume Hood

A VAV Fume Hood has the bypass opening blanked off so that all of the air entering the Fume Hood passes through the Sash opening under the Sash handle. In addition there is a valve or damper in the exhaust duct that closes or opens as the Sash is closed or opened. This way the face velocity is kept constant and **the exhaust volume is reduced by up to 85% when the Sash is closed** without compromising the Containment of the Fume Hood
By linking the Air Supply volume to the Fume Hood exhaust volume **there is an 85% reduction in the air supply** when the Fume Hood sash is closed — **this gives an 85% reduction in Energy consumption**



2- Position Control with Inverter

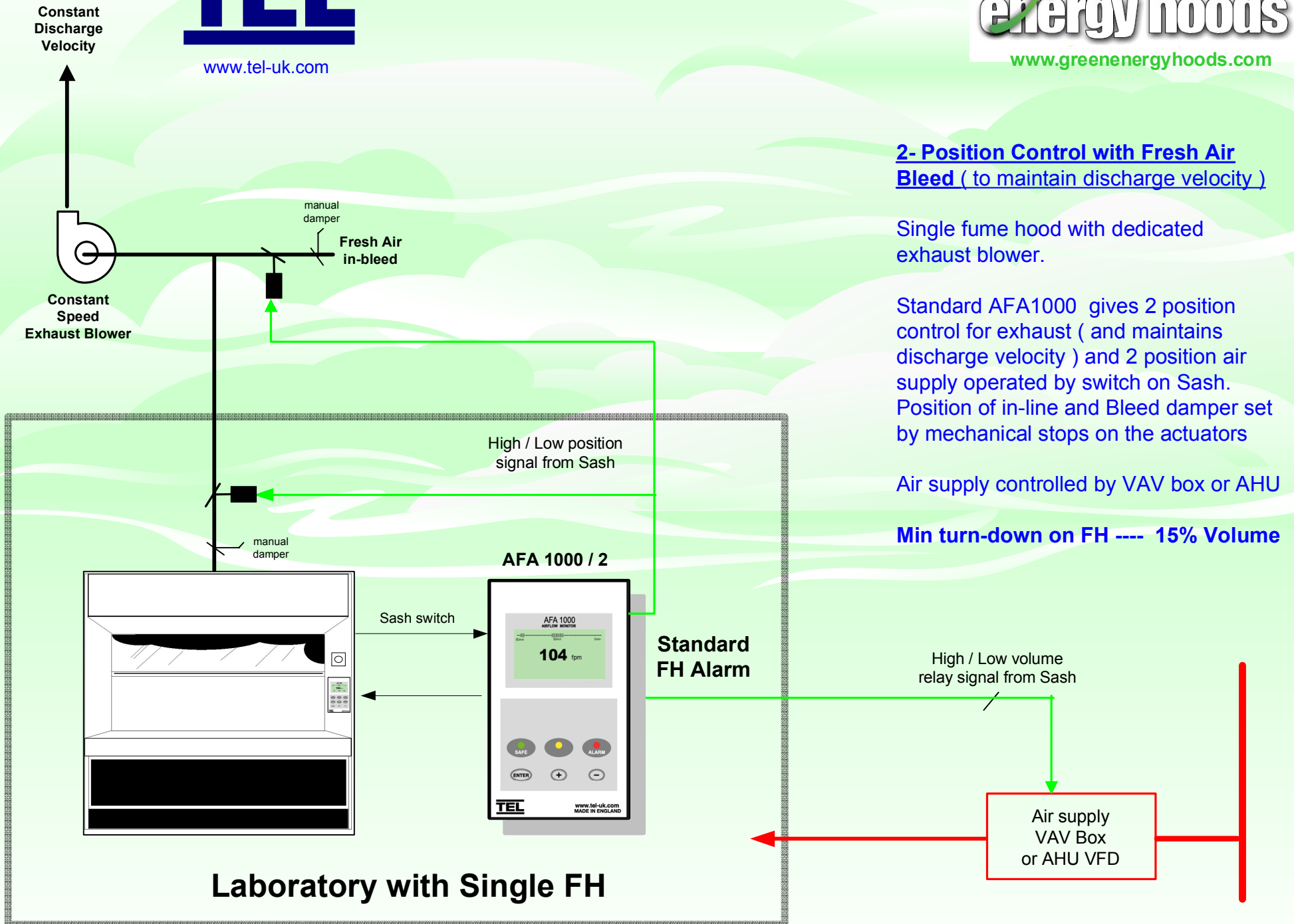
Single fume hood with dedicated exhaust blower.

Standard AFA1000 gives 2 position control for exhaust and air supply operated by switch on Sash

Exhaust volume controlled by variable speed Inverter drive

Air supply controlled by VAV box or AHU

Min turn-down on FH ---- 50% Volume



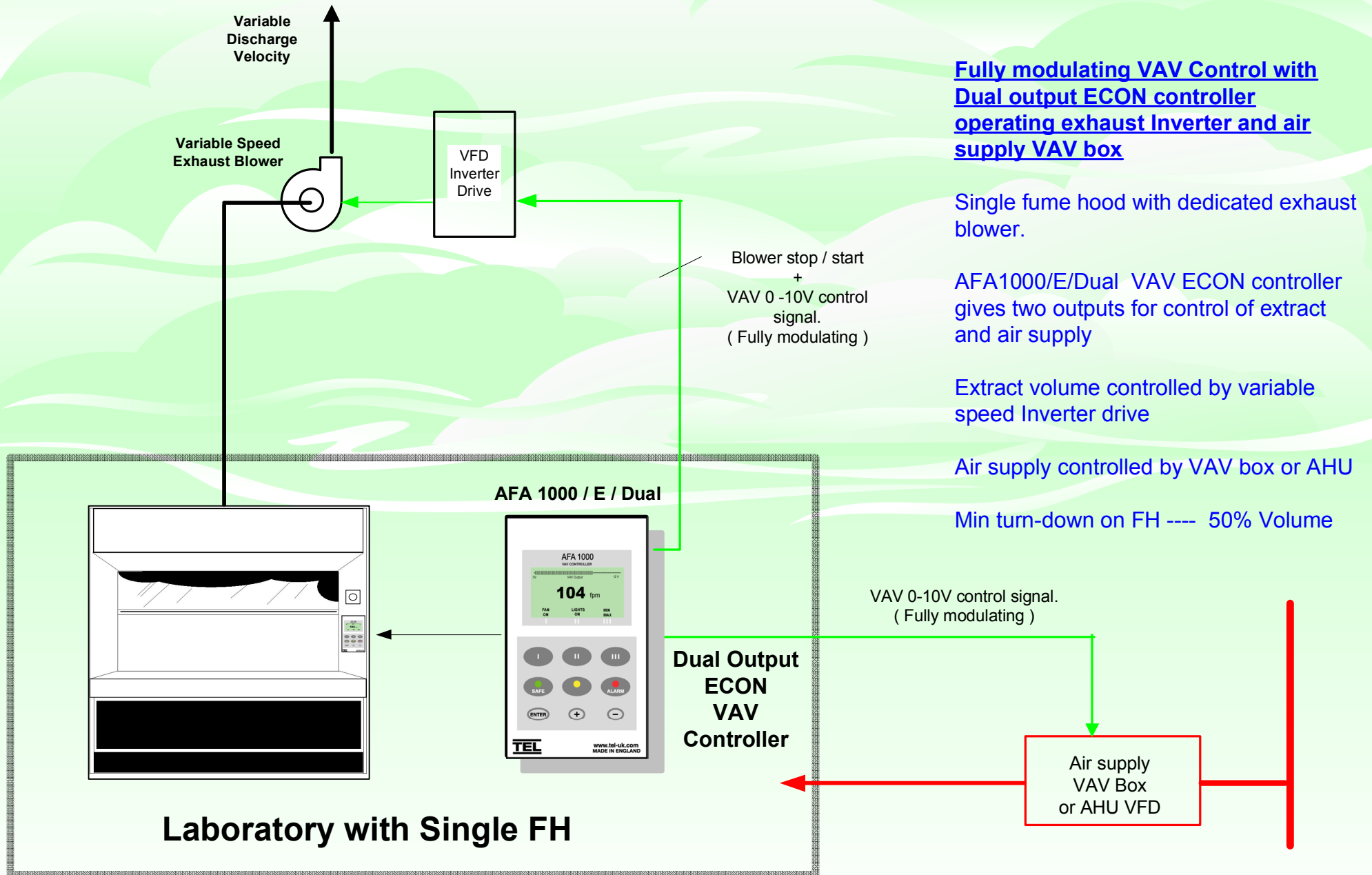
2- Position Control with Fresh Air Bleed (to maintain discharge velocity)

Single fume hood with dedicated exhaust blower.

Standard AFA1000 gives 2 position control for exhaust (and maintains discharge velocity) and 2 position air supply operated by switch on Sash. Position of in-line and Bleed damper set by mechanical stops on the actuators

Air supply controlled by VAV box or AHU

Min turn-down on FH ---- 15% Volume



Fully modulating VAV Control with Dual output ECON controller operating exhaust Inverter and air supply VAV box

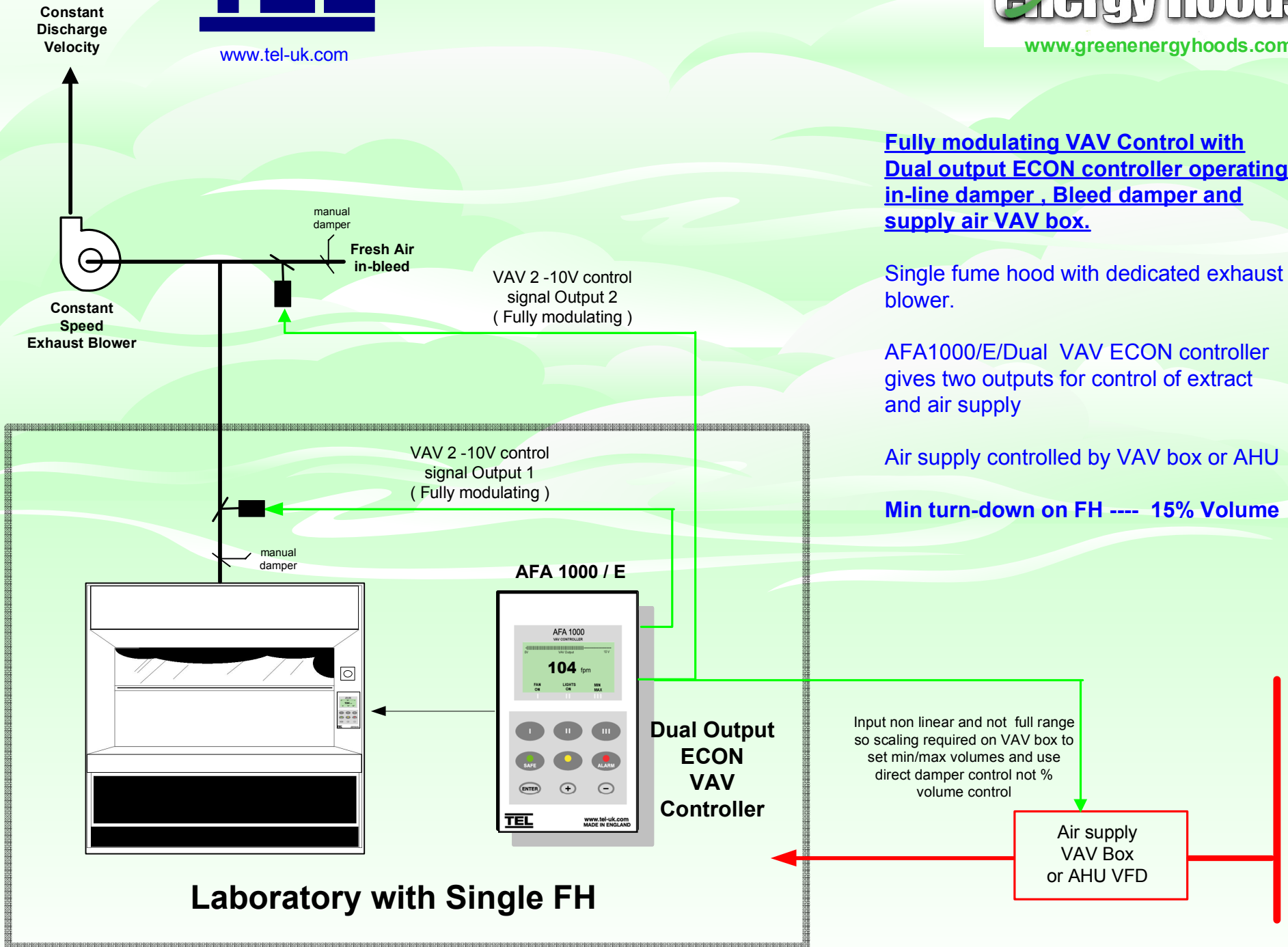
Single fume hood with dedicated exhaust blower.

AFA1000/E/Dual VAV ECON controller gives two outputs for control of extract and air supply

Extract volume controlled by variable speed Inverter drive

Air supply controlled by VAV box or AHU

Min turn-down on FH ---- 50% Volume



Fully modulating VAV Control with Dual output ECON controller operating in-line damper , Bleed damper and supply air VAV box.

Single fume hood with dedicated exhaust blower.

AFA1000/E/Dual VAV ECON controller gives two outputs for control of extract and air supply

Air supply controlled by VAV box or AHU

Min turn-down on FH ---- 15% Volume

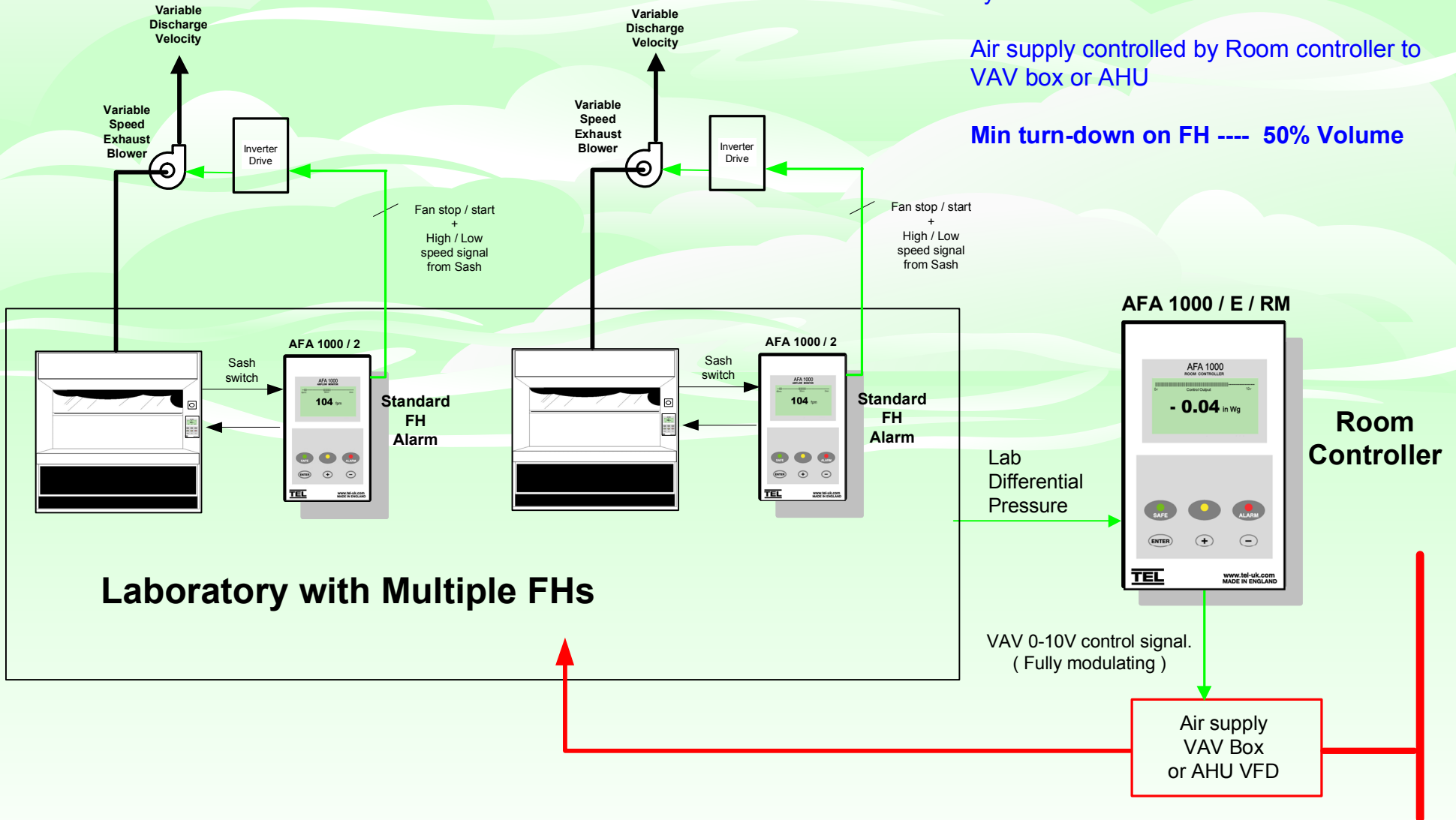
Multiple 2- Position FH Control with Inverter

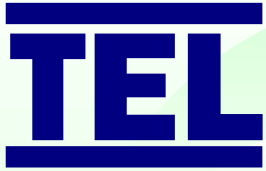
Single fume hoods with dedicated exhaust blowers.

Standard AFA1000 gives 2 position control for FH exhaust Inverters operated by switch on Sash

Air supply controlled by Room controller to VAV box or AHU

Min turn-down on FH ---- 50% Volume





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Multiple 2- Position Control with Fresh Air Bleed (to maintain discharge velocity)

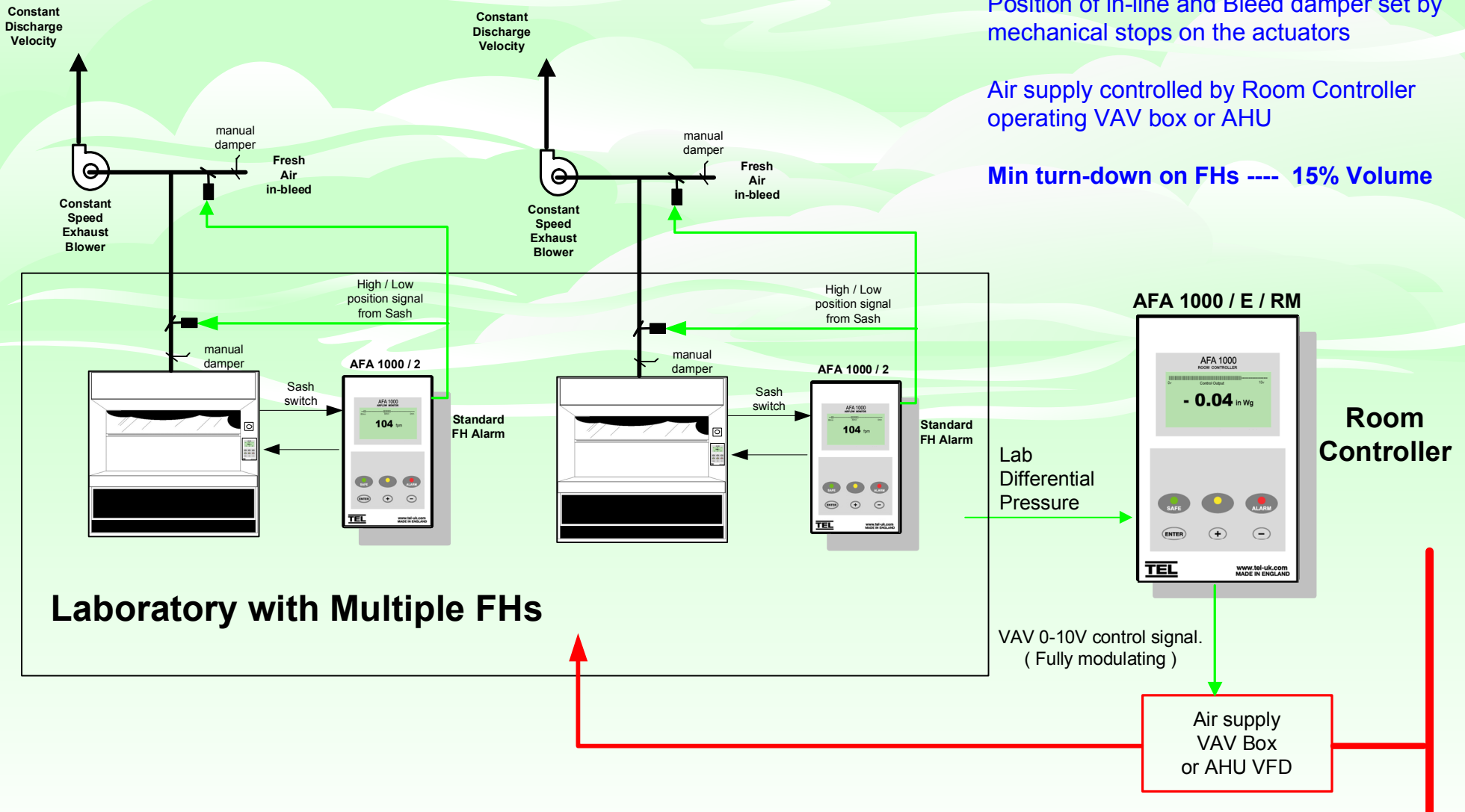
Single fume hoods with dedicated exhaust blowers.

Standard AFA1000 gives 2 position control for exhaust (and maintains discharge velocity) and 2 position air supply operated by switch on Sash.

Position of in-line and Bleed damper set by mechanical stops on the actuators

Air supply controlled by Room Controller operating VAV box or AHU

Min turn-down on FHs ---- 15% Volume



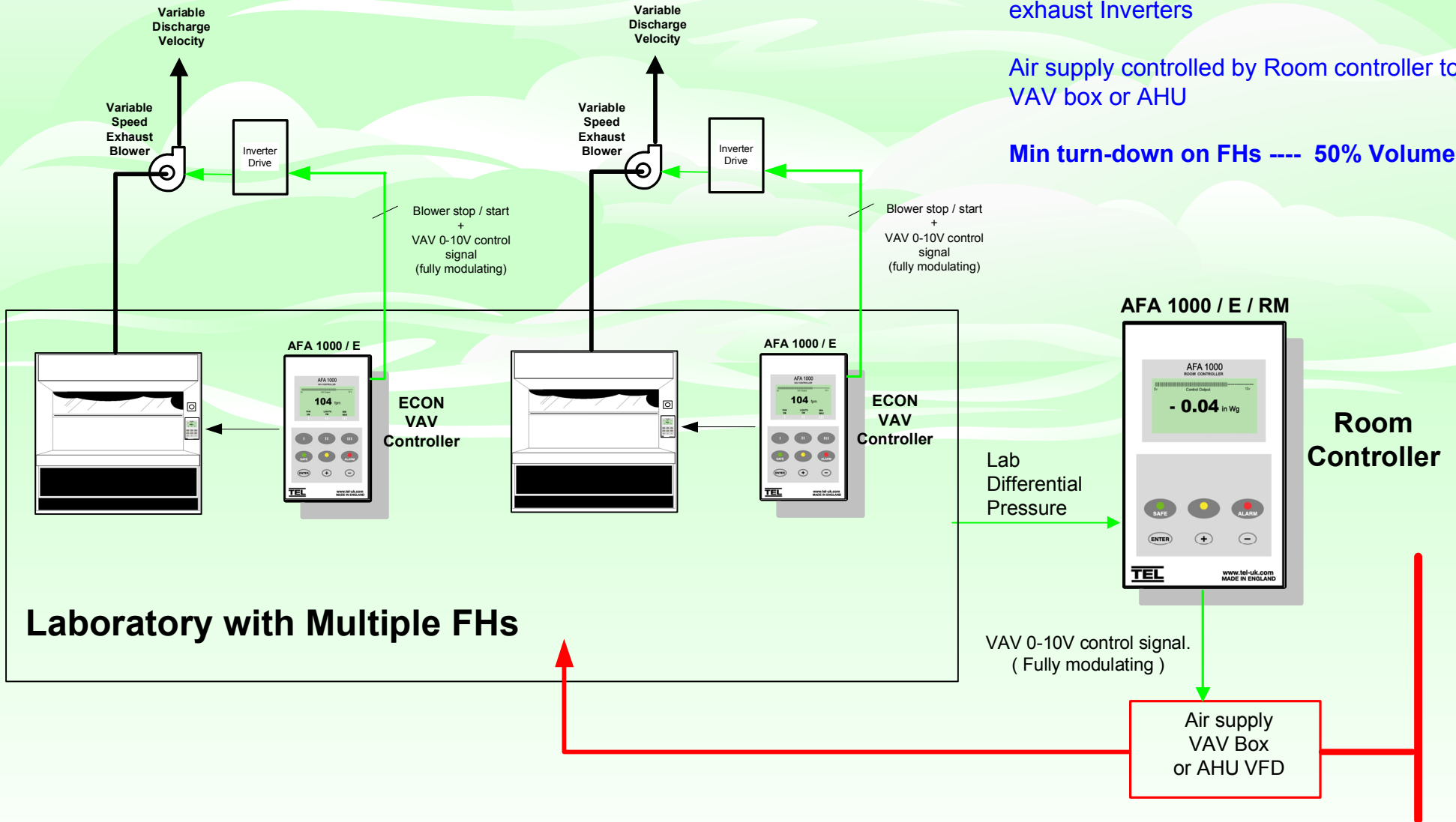
Multiple Fully modulating VAV Control with ECON controller operating FH exhaust Inverter

Single fume hoods with dedicated exhaust blowers.

AFA1000/E ECON VAV controller gives fully modulating VAV control for FH exhaust Inverters

Air supply controlled by Room controller to VAV box or AHU

Min turn-down on FHs ---- 50% Volume



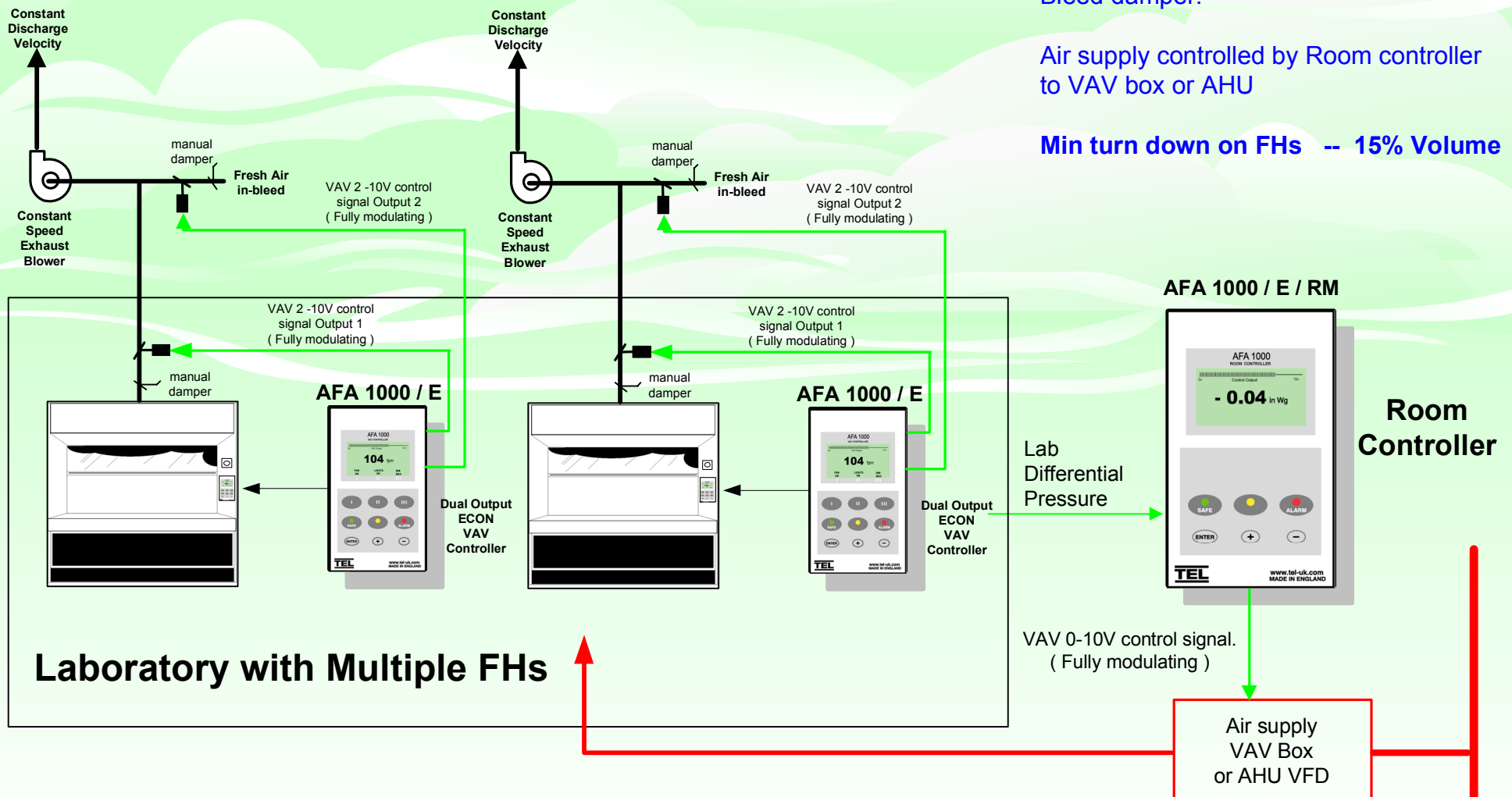
Multiple Fully modulating VAV Control with Dual output ECON controller operating in-line damper and Bleed damper .

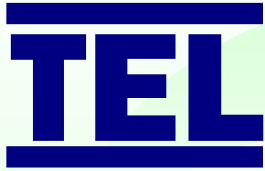
Single fume hoods with dedicated exhaust blowers.

AFA1000/E/Dual VAV ECON controller gives two outputs for control of in-line and Bleed damper.

Air supply controlled by Room controller to VAV box or AHU

Min turn down on FHs -- 15% Volume





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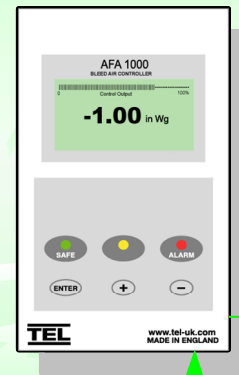


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Multiple Fume Hoods on common exhaust with ON / OFF damper control (Manual) or 2 Position damper control via Sash switch

Fresh Air Bleed Controller

AFA 1000 / E / BLD



Fresh Air Bleed

Constant Discharge Velocity

Constant Speed Exhaust Blower

Extract Duct Pressure

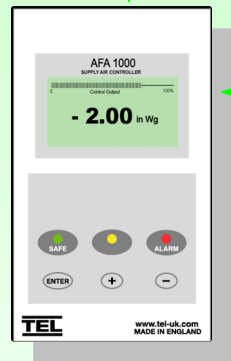
Control signal to vary AHU motor speed to maintain constant pressure in supply air duct

AHU

AFA 1000 / 2



Standard FH Alarm On / Off or 2 position damper control



AFA 1000 / E / Bld / P

Supply Duct Pressure

Air supply to other areas via VAV or CAV controls

VAV Air Supply to Lab

AFA 1000 / E / RM



Room Controller

Lab Differential Pressure

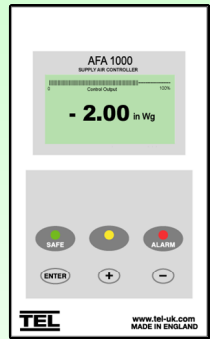
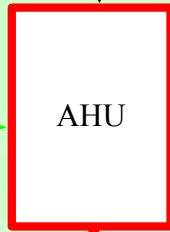
Typical Laboratory



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Airflow ECON VAV Controls with Common Exhaust and AHU

Control signal to vary AHU motor speed to maintain constant pressure in supply air duct



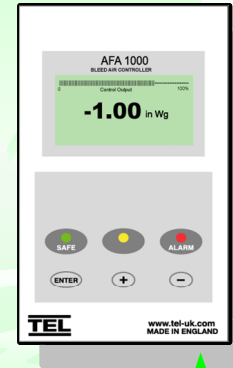
AFA 1000 / E / Bld / P

Supply Duct Pressure

Air supply to other areas via VAV or CAV controls

Fresh Air Bleed Controller

AFA 1000 / E / BLD



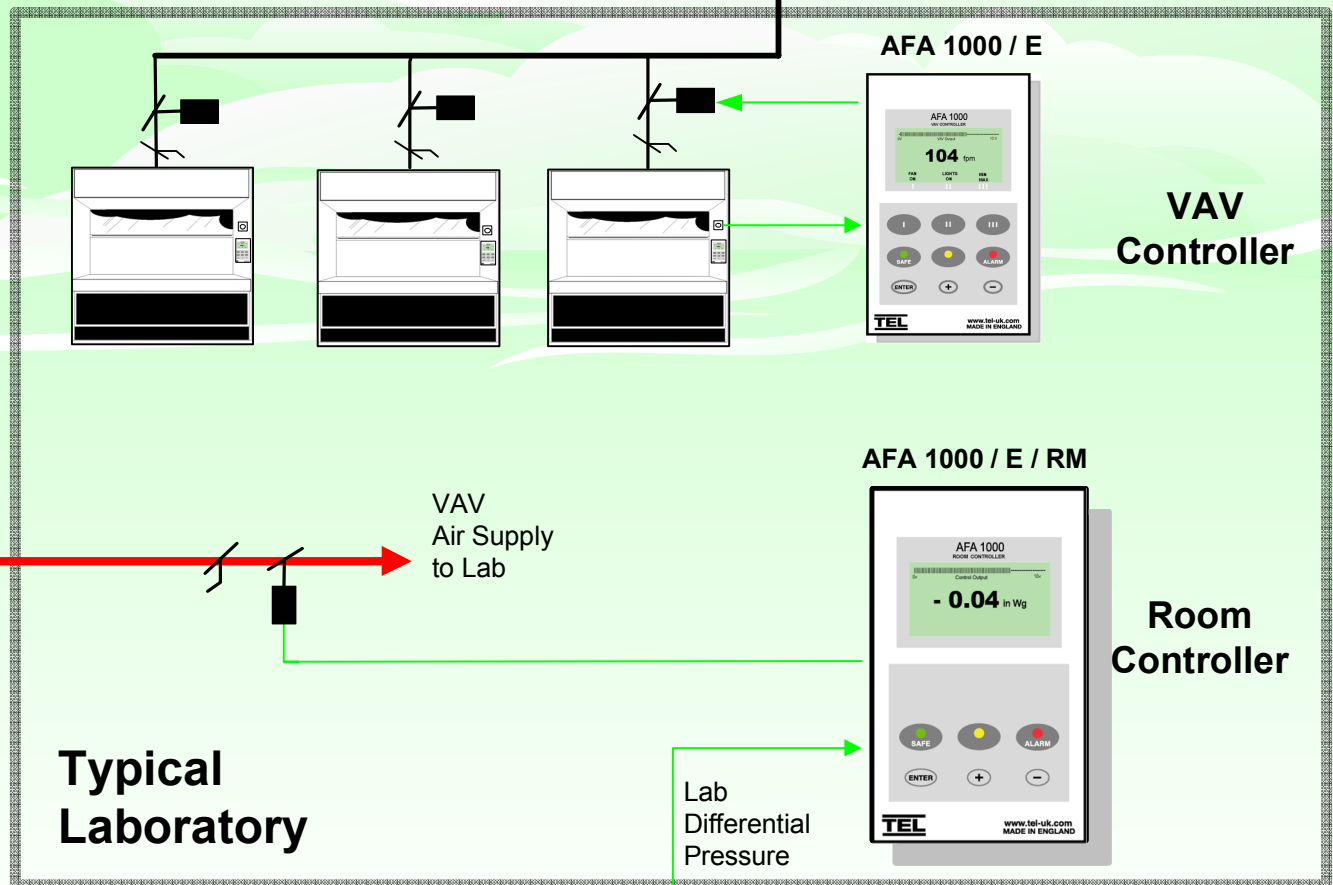
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Fresh Air Bleed

Constant Discharge Velocity

Constant Speed Exhaust Blower

Extract Duct Pressure

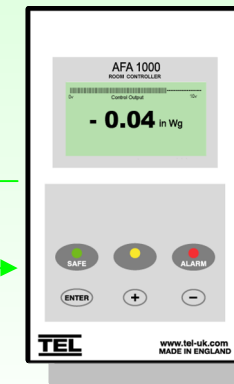


AFA 1000 / E



VAV Controller

AFA 1000 / E / RM

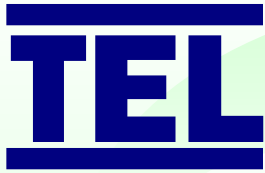


Room Controller

VAV Air Supply to Lab

Lab Differential Pressure

Typical Laboratory

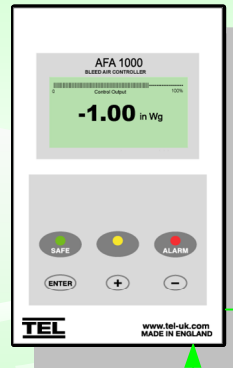


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Airflow ECON VAV Controls with Common Exhaust and Dedicated AHU

AFA 1000 / E / BLD

Fresh Air Bleed Controller



Fresh Air Bleed

Constant Discharge Velocity

Constant Speed Exhaust Blower

Extract Duct Pressure

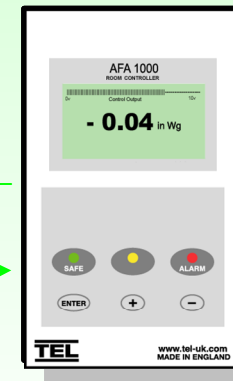
AFA 1000 / E

VAV Controller



AFA 1000 / E / RM

Room Controller



Control signal to vary AHU motor speed to maintain constant pressure in Laboratory

VAV Air Supply to Lab

Typical Laboratory

Lab Differential Pressure



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Bill of Quantities for the various options on the VAV controls

Labs with a single Fume Hood with a Dedicated Exhaust Blower

2- Position Control with Inverter (Page 4)

Equipment required per fume hood :- **AFA1000 / 2** Alarm
Sash switch
Inverter drive (sized for blower fan motor) (TEL or client to supply)

2- Position Control with Fresh Air Bleed (Page 5)

Equipment required per fume hood :- **AFA1000 / 2** Alarm
Sash switch
In-line Damper and Fresh Air Bleed Damper with actuators and power supplies
(sized for FH exhaust volume)

Fully modulating VAV Control with ECON controller operating Inverter (Page 6)

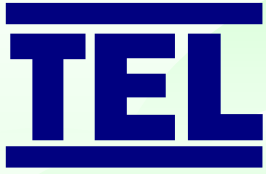
Equipment required per fume hood :- **AFA1000 / E** ECON controller (**for Inverter control**)
Inverter drive (sized for blower fan motor) (TEL or client to supply)

Fully modulating VAV Control with ECON controller operating In-line and Bleed dampers (Page 7)

Equipment required per fume hood :- **AFA1000 / E / DUAL** ECON controller
In-line Damper and Fresh Air Bleed Damper with actuators and power supplies
(sized for FH exhaust volume)



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Bill of Quantities for the various options on the VAV controls

Labs with multiple Fume Hoods each with a Dedicated Exhaust Blower

Multiple 2- Position FH Control with Inverter (Page 8)

Equipment required per fume hood :- **AFA1000 / 2** Alarm
Sash switch
Inverter drive (sized for blower fan motor) (TEL or client to supply)

Equipment required per Laboratory :- **AFA1000 / E / Rm** Room controller

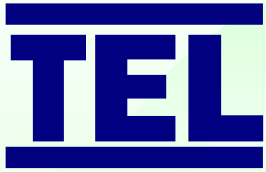
Multiple 2- Position FH Control with Fresh Air Bleed(Page 9)

Equipment required per fume hood :- **AFA1000 / 2** Alarm
Sash switch
In-line Damper and Fresh Air Bleed Damper with actuators and power supplies
(sized for FH exhaust volume)

Equipment required per Laboratory :- **AFA1000 / E / Rm** Room controller



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Bill of Quantities for the various options on the VAV controls

Labs with multiple Fume Hoods each with a Dedicated Exhaust Blower

Multiple Fully modulating VAV Control with ECON controller operating FH extract Inverter (Page 10)

Equipment required per fume hood :- **AFA1000 / E** ECON controller
Inverter drive (sized for blower fan motor) (TEL or client to supply)

Equipment required per Laboratory :- **AFA1000 / E / Rm** Room controller

Multiple Fully modulating VAV Control with ECON controller operating In-line and Bleed dampers(Page 11)

Equipment required per fume hood :- **AFA1000 / E / DUAL** ECON controller
In-line Damper and Fresh Air Bleed Damper with actuators and power supplies
(sized for FH exhaust volume)

Equipment required per Laboratory :- **AFA1000 / E / Rm** Room controller



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Bill of Quantities for the various options on the VAV controls

Labs with multiple Fume Hoods served by a Common Exhaust Blower

Multiple Fume Hoods on common exhaust with ON / OFF damper control (Manual)
or 2 Position damper control via Sash switch (Page 12)

- Equipment required per fume hood :- **AFA1000 / 2 Alarm**
In-line ECON Damper with actuator and power supply (sized for FH exhaust volume)
- Equipment required per Extract system :- **AFA1000 / E / Bld** Fresh Air Bleed controller
Multivane Bleed Damper with actuator and power supply (sized for total volume)
- Equipment required per Laboratory :- **AFA1000 / E / Rm** Room controller
- Equipment required per AHU :- **AFA1000 / E / Bld / P** AHU pressure controller (optional)



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Bill of Quantities for the various options on the VAV controls

Labs with multiple Fume Hoods served by a Common Exhaust Blower

Airflow ECON VAV Controls with Common Exhaust and Common AHU (Page 13)

- Equipment required per fume hood :- **AFA1000 / E** ECON controller
In-line ECON Damper with actuator and power supply (sized for FH exhaust volume)
- Equipment required per Extract system :- **AFA1000 / E / Bld** Fresh Air Bleed controller
Multivane Bleed Damper with actuator and power supply (sized for total volume)
- Equipment required per Laboratory :- **AFA1000 / E / Rm** Room controller
- Equipment required per AHU :- **AFA1000 / E / Bld / P** AHU pressure controller (optional)

Airflow ECON VAV Controls with Common Exhaust and Dedicated AHU (Page 14)

- Equipment required per fume hood :- **AFA1000 / E** ECON controller
In-line ECON Damper with actuator and power supply (sized for FH exhaust volume)
- Equipment required per Extract system :- **AFA1000 / E / Bld** Fresh Air Bleed controller
Multivane Bleed Damper with actuator and power supply (sized for total volume)
- Equipment required per Laboratory :- **AFA1000 / E / Rm** Room controller



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