

Functional Performance Test

[Project Name]

System: **Laboratory Exhaust Fan**

Tag:

Service:

<i>Functional Performance Test</i>	<i>Pass</i>	<i>Fail</i>	<i>Remarks</i>
FPT Prerequisites			
Start-up reports for the exhaust fan completed & provided			
SVC completed, signed, and dated			
TAB report completed & provided			
Safeties/Alarms			
Fan – no airflow			
Alarm sent to BAS			
Reset alarm			
Exhaust duct static pressure – high limit			
Alarm sent to BAS			
Reset alarm			
Exhaust duct static pressure – low limit			
Alarm sent to BAS			
Reset alarm			
Exhaust fan static pressure (safety) – high limit alarm			
Alarm sent to BAS			
Reset alarm			
VFD – output voltage high limit alarm			
Alarm sent to BAS			
Reset Alarm			
VFD – output voltage low limit alarm			
Alarm sent to BAS			
Reset Alarm			
VFD – drive temperature high limit alarm			
Alarm sent to BAS			
Reset Alarm			
VFD – drive temperature low limit alarm			
Alarm sent to BAS			
Reset Alarm			
VFD – system undervoltage low limit alarm			
Alarm sent to BAS			
Reset Alarm			
VFD – fault message alarm			
Alarm sent to BAS			
Reset Alarm			

"This Functional Performance Test document represents FCG's standard test protocol, basic functional test, and FCG's best understanding of the designed sequence of operation. This document DOES NOT define design intent, supersede contract documents, or direct means and methods."

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Safeties/Alarms (continued)			
VFD – fault code text message alarm			
Alarm sent to BAS			
Reset Alarm			
VFD – loss of airflow general alarm			
Alarm sent to BAS			
Reset Alarm			
Operation Mode			
EF's verified off			
Demonstrate Building EMS/DDC System indexes fans on			
Discharge dampers fully open			
Bypass dampers open and are modulating to maintain -3.5" minimum S.P. (Adj.)			_____ S.P.
EF's turns on and operate simultaneously and continuously			Current sensor proves fans status
EF's VFD modulates to maintain static pressure setpoint			Static pressure setpoint = _____" W.C.
Exhaust fans turned 'OFF' at VFD			
Current sensor initiates alarm to fan controller and initiates standby fan			
Discharge damper fully open			
Bypass damper open			
Standby exhaust fan VFD 'ON' and running continuously			
Setpoint maintained			
Exhaust fan VFD turned 'ON'			
Standby exhaust fan VFD 'OFF' and in standby operation			
Duct Static Pressure Setpoint			
Demonstrate Building EMS/DDC System indexes unit on and in occupied mode			
Demonstrate bypass dampers reach 100% open and exhaust duct static pressure sensor > setpoint			_____ S.P.
EF's stage off to allow static pressure to be controlled by bypass damper			
Demonstrate Building EMS/DDC System indexes fans on and in occupied mode			

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Duct Static Pressure Setpoint (continued)			
Demonstrate laboratory supply air system(s) shut down			Manual shutdown, power failure, fire alarm, smoke detector, freeze indication
Bypass dampers are opened on exhaust fans proportionally to maintain a duct pressure setpoint of -0.5" W.C			
High Limit Negative Static Pressure Setpoint			
Demonstrate Building EMS/DDC System indexes fans on and in occupied mode			
Demonstrate high limit negative static pressure sensor in inlet plenum overrides bypass dampers to open dampers as required to maintain setpoint			-6" W.G. (Adj.)
Demonstrate bypass dampers open 100% and exhaust duct static pressure exceeds high limit setpoint			
EF's stages off to allow duct static pressure setpoint to drop			
Monitoring Points			
Bypass damper position			
Exhaust duct static pressure			
Exhaust fan			Run time, critical alarm, maintenance, staggered start
Exhaust fan static pressure – safety			Critical alarm, maintenance
Fan – air flow measuring station			

Number	Date	Remark
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