

**SOM FACILITIES START-UP AND COMMISSIONING CHECK LIST FOR ELECTRICAL EQUIPMENT**

Building:	Project Name:	
Date:	Name:	

**VARIABLE FREQUENCY DRIVES**

ITEM	DESCRIPTION	STATUS	COMMENTS
1	Visual and Mechanical Inspection		
a	Document equipment nameplate data	P F	_____
b	Verify equipment nameplate ratings are in accordance with the owner's drawings and specifications	P F	_____ _____
c	Inspect physical, electrical, and mechanical conditions	P F	_____
d	Confirm correct application of lubricants at manufacturer's recommended locations.	P F	_____
e	Verify appropriate anchorage, required area clearances, physical damage, and correct alignment and clearances	P F	_____ _____
f	Verify that fuse and/or circuit breaker sizes and types correspond to drawings.	P F	_____ _____
g	Verify that current and potential transformer ratios correspond to drawings.	P F	_____ _____
h	Verify tightness of accessible bolted electrical connections by calibrated torque wrench method.	P F	_____ _____
i	Confirm correct operation and sequenceing of electrical and mechanical interlock systems.	P F	_____ _____
j	Attempt closure on locked-open devices. Attempt to open locked-closed devices.	P F	_____ _____
k	Make key exchange with devices operated in off-normal positions	P F	_____

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ITEM	DESCRIPTION	STATUS	COMMENTS
1	Visual and Mechanical Inspection (continued)		
l	Inspect insulators for evidence of physical damage or	P F	_____

	contaminated surfaces.			
m	Verify correct barrier and shutter installation and operation	P	F	
n	Exercise all active components	P	F	
o	Verify that filters are in place and/or vents are clean	P	F	
p	Test operation, alignment, and penetration of instrument transformer withdrawal disconnects, current carrying & grounding	P	F	
q	Inspect control power transformers.	P	F	
r	Inspect physical damage, cracked insulation, broken leads, tightness of connections, defective wiring and overall general conditions	P	F	
s	Verify that primary and secondary fuse ratings or circuit breakers match drawings	P	F	
t	Verify MCC is located in a clean accessible area on housekeeping pad. Pad includes 42" standing space in front of MCC	P	F	
u	Verify that there are no modules on the top row so that top row does not exceed code height.	P	F	
v	Verify standard construction, copper bus, NEMA Class II, Type B. All modules draw out	P	F	
w	Verify that the MCC is protected by magnetic Motor Circuit Protectors (MCP), not circuit breakers.	P	F	
x	Verify that the Variable Frequency Drives are near motor not in MCC	P	F	

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ITEM	DESCRIPTION	STATUS		COMMENTS
1	Visual and Mechanical Inspection (continued)			
y	Verify that there are 4 sets of Auxiliary contacts	P	F	
z	Verify operation of the Hand-Off-Auto selector switches for fans Verify Off-Auto switch only for pumps that cannot run dry.	P	F	
aa	Confirm LED pilot lamps: Red "Run" only	P	F	
bb	Verify Control Transformers in each module, fused primary and secondary	P	F	

cc	Verify seismic rating, CBC Zone 4	P	F	
dd	Verify adequate lighting, Emergency lighting if available	P	F	
ee	Include 25% spare sections	P	F	
ff	Verify Arc Flash Hazard labels are applied	P	F	
gg	Verify panels are marked with Voltage & Amperage	P	F	
hh	Verify working clearances maintained: 30" min or full width of MCC, 36" deep for 208V, 42" deep for 480V.	P	F	
ii	Verify MCC is clean and dust free including insulators	P	F	
jj	Damaged paint repaired with correct color	P	F	
kk	Panel labels consistent with drawings. Emergency labels "red"	P	F	

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ITEM	DESCRIPTION	STATUS		COMMENTS
2	Electrical Tests			
a	Perform insulation-resistance tests on each bus section, phase-to-phase and phase-to-ground at the min dc test voltage	P	F	
b	Perform test on all instrument transformers	P	F	
c	Verify operation of motor control center heaters	P	F	
d	Determine accuracy of all meters.	P	F	
e	Test individual circuit breakers larger than 400A	P	F	
3	Optional Tests			
a	Perform insulation-resistance test at 500 Vdc on all control wiring except on wiring connected to solid-state components	P	F	

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|---|--|---|---|--|
| b | Perform tests on all instrument transformers   | P | F |  |
| c | Perform the following tests on control power transformers:<br>Perform insulation-resistance test<br>Perform secondary wiring integrity test<br>Verify correct secondary voltage by energizing primary winding with system voltage. | P | F |  |
| d | Perform the following tests on potential transformers:<br>Perform secondary wiring integrity test<br>Verify secondary voltage by energizing primary winding with system voltage.   | P | F |  |
| e | Perform a power frequency test (High Pot) on each bus section, each phase-to-ground with phases not under test grounded.   | P | F |  |
|   |  | P | F |  |
| f | Perform ground-resistance tests  | P | F |  |