Infrared Inspection Report

By

Al Lectric Electrical Contracting Corp

At

New York, NY 10013

Report date: 3/28/16

Foreword

This Report of Infrared Inspection provides complete documentation of thermal patterns detected in your equipment, structure or system. It uses a subjective evaluation to help you prioritize repairs to provide the greatest return from this inspection and your maintenance. This Report of Infrared Inspection meets the documentation requirements of the Infraspection Institute Standard for Infrared Inspection of Electrical Systems and Rotating Equipment, as well as standards, practices and specifications published by NFPA and NETA.

How Infrared Thermography Works

Infrared imagers “see” the heat radiated from your equipment in real time, just like a video camera sees visible light. When thermograms are in color, colors in the scene are matched to the reference bar. Colors appearing closer to the top of the reference bar indicate higher temperatures. Colors appearing closer to the bottom of the reference bar indicate lower temperatures.

Infrared thermography falls within a group of diagnostic tools classified as nondestructive testing. That is - it neither damages nor alters that material or component which it is evaluating. The fundamental advantage of IR inspection is it's ability to identify previously unavailable operating information pertaining to critical component and equipment my measuring the temperature surface temperature. Some of the components which can benefit from an Infrared inspection are high voltage electrical equipment, switches, conductors and connections, or mechanical rotating body or piece of equipment which exists in an inaccessible location. Because IR operates from a safe distance and without any physical contact, it is possible to survey any physical condition having a thermal differential and not interfere in the operation of the subject equipment.

Repair Priority Ratings

Each thermogram is given a Subjective Repair Priority Rating which is based upon your qualified assistant’s opinion of how critical the subject item is to the safe and profitable operation of your overall system.

The Inspection Summary section of this report explains how to use this Subjective Repair Priority Rating to help you determine how quickly you need to investigate and correct the potential problem.

Overheating can cause premature deterioration and costly, unplanned failure of your equipment. Overheating connectors, conductors and components will never get better.
In fact, the temperature and rate of deterioration will increase with time.

No one can predict when a failure will occur. As a result, we suggest that you use the Subjective Repair Priority Ratings as a guide but that you investigate and take appropriate corrective measures as soon as possible.

Report Summary

Inspection date:	3/27/16
Report Date:	3/28/16
Type of Inspection:	[redacted]
Purpose of Inspection:	PPM
End User:	
Project Location:	[redacted] New York, NY 10013
Thermographer:	[redacted]
Certification Number:	[redacted]
Certification Level :	[redacted]
Qualified Assistant(s):	[redacted]

Equipment Used:	FLIR P640 S/N 404000447			
Weather Data:	Day:	Sunny	Night:	Mostly Cloudy
	Highs:	55F	lows:	44F
Last Precipitation	Date:	3/21/16		
# of Items Inspected	97			
# of Thermograms	20			

Comments:

We base our opinions and forgone conclusions to a reasonable degree of scientific (Thermographic) certainty. All items on the inventory list were surveyed using infrared . Only items with an infrared exception (problem) are contained in this report. No one can predict when a failure will occur. As a result, we recommend investigating and repairing all problem areas regardless of priority number. All equipment and components in which we are requested to scan, but do not have a clear line-of-site visibility will be noted as "Limited Visibility" , or "Not Inspected" in this final report.

Load appeared to be lighting in the building. In switchgear section #7 all the screws on the "B" phase switches (items 17-20) looked burnt. Something systematic must have happened to this section of gear.

Disclaimers

Non-destructive testing conducted by Al-Lectric Electrical Contracting is no substitute for adequate customer resources, time, and formal program processes, and even when delivered by trained and experienced inspection professionals with the support of management dedicated to customer satisfaction, Infrared Imaging Services LLC will never completely identify all defects, avoid all problems, or stop obsolescence.

All testing conducted by Al-Lectric Electrical Contracting is conducted using the test equipment noted in your quote and/or final report. Inspection procedures were performed to the best of our ability. All data and inspection results presented in your report document the equipment's characteristics which were analyzed and/or calculated at that specific point in time. All inspection data and results presented are only a partial representation of the total system which was inspected. **THE RESULTS SHOULD NOT BE CONSIDERED A TRUE REPRESENTATION OF THE COMPLETE SYSTEM.**

Electrical and mechanical equipment are always dynamic in nature – always changing due to requested conditions of the facilities operational demands as well as outside sources such as utilities and environment. These varied demands and/or outside source disturbances/anomalies play a significant role in the reliability of the electrical and/or mechanical infrastructure in the operation of a facility. As reliable and complex as today's power and/or mechanical systems have become, no system can operate 100% indefinitely. Every system component, no matter how well designed will eventually achieve a failure rate of 100%.

Predictive testing is not 'crystal ball maintenance,' and under the current state of the art, it is unreliable and ineffective as an advance indicator of all electrical/mechanical fatigue failures. Non-destructive/predictive testing will not do away with the need for regular preventive maintenance and direct inspection. By itself, without a core commitment to addressing anomalies, defects and chronic difficulties regardless of reported priority levels, predictive testing cannot reduce equipment failure, reduce personnel or produce a major decrease in lifetime maintenance costs.

The "Inventory list" in this report should not be considered a complete list of all your electrical and/or mechanical equipment within your facility - it is only an inventory list of equipment which was brought to our attention by the Qualified Assistant supplied by your facility to escort the Infrared Technician throughout your facility. Also, data and test results presented in this report document the equipment's characteristics at that specific point in time.

THE SERVICES PERFORMED, AND THIS REPORT DO NOT CONSTITUTE A WARRANTY, AN INSURANCE POLICY, OR A GUARANTEE OF ANY KIND; NOR DO THEY SUBSTITUTUE FOR ANY DISCLOSURE STATEMENT AS MAY BE REQUIRED BY LAW. THERE ARE NO WARRANTIES MADE. YOU AGREE NOT TO HOLD US REPONSIBLE FOR FUTURE FAILURE AND REPAIR, OR FOR THE NON-DISCOVERY OF ANY PATENT OR LATENT DEFECTS IN MATERIAL, WORKMANSHIP, OR OTHER CONDITIONS OF THE PROPERTY WHICH MAY OCCUR OR BECOME EVIDENT AFTER THE DATE THE SERVICES WERE PERFORMED; YOU AGREE TO ASSUME ALL THE RISKS FOR CONDITIONS WHICH ARE CONCEALED FROM VIEW OR INACCESSIBLE TO US AT THE TIME THAT THE SERVICES WERE PERFORMED

Inspection Summary

For the equipment inspected, we have recorded a total of 20 thermogram(s) or daylight photograph(s) documenting conditions found during our inspection. These thermograms and/or photographs appear on the Image Pages found at the end of this report.

As a reference, each Image Page contains Evaluation Priority Ratings. Subjective Evaluation Ratings are based upon the Qualified Assistant's opinion of the subject item's importance to the safe and continuous operation of the facility. Objective Evaluation Ratings found on Electro/Mechanical Image Pages are based upon temperature rise criteria as specified by NFPA, NETA and the Infraspection Institute Standard for Infrared Inspection of Electrical Systems and Rotating Equipment.

Depending upon Image Page format, Subjective and/or Objective Priority Ratings may be found. When both are listed, an Average Repair Priority Rating will also be displayed. This Average Repair Priority Rating is the mean value of the Subjective and Objective Priorities. When appropriate, the Average Repair Priority is rounded up to the next highest whole number.

Potential problems documented in this report are grouped and listed according to the following Average Repair Priority or Subjective Evaluation Ratings.

The following Delta T (temperature difference) is reported as the temperature rise of the exception above a defined reference, which is typically ambient air or a similar component under the same conditions or the maximum allowable temperature rise of the component, Tmax.

	NETA	Experience
Basis of Objective Priority (X):	x	

Quantity

2	**Priority 1**: Major discrepancy; repair immediately
1	**Priority 2**: Monitor until corrective measures can be accomplished, fix ASAP
7	**Priority 3**: Indicated probable deficiency; repair as time permits
10	**Priority 4**: Possible deficiency; warrants investigation

Equipment Inventory list

Sequence Number	Location 1	Equipment	Equip#	In Service	Avg Priority	Visual
1	**Main Electric Room**	Switchgear - 400A Fused DS	9th Floor	Y		P
2	Main Electric Room	Switchgear - 400A Fused DS	8th Floor	Y		P
3	Main Electric Room	Switchgear - 400A Fused DS	7th Floor	Y		P
4	Main Electric Room	Switchgear - 400A Fused DS	6th Floor	Y		P
5	Main Electric Room	Switchgear - 400A Fused DS	5th Floor	Y		P
6	Main Electric Room	Switchgear - 400A Fused DS	4th Floor	Y		P
7	Main Electric Room	Switchgear - 400A Fused DS	3rd Floor	Y		P
8	Main Electric Room	Switchgear - 400A Fused DS	2nd Floor	Y		P
9	Main Electric Room	Switchgear - 600A Fused DS	3,9,17 Floor	Y		F
10	Main Electric Room	Switchgear - 600A Fused DS	7th Floor	Y		P
11	Main Electric Room	Switchgear - 600A Fused DS	8,9, 10 Floor	Y		P
12	Main Electric Room	Switchgear - 4000A Fused DS	DP 2A & 2B	Y		P
13	Main Electric Room	Switchgear - 4000A Fused DS	SW #1	Limited visibility		P
14	Main Electric Room	Switchgear - 400A Fused DS	10th Floor	Y		P
15	Main Electric Room	Switchgear - 400A Fused DS	11th Floor	Y		P
16	Main Electric Room	Switchgear - 400A Fused DS	12th Floor	Y		P
17	Main Electric Room	Switchgear - 400A Fused DS	14th Floor	Y	4	F
18	Main Electric Room	Switchgear - 400A Fused DS	16th Floor	Y	4	F
19	Main Electric Room	Switchgear - 400A Fused DS	15th Floor	Y	4	F
20	Main Electric Room	Switchgear - 400A Fused DS	17th Floor	Y	4	F
21	Main Electric Room	Switchgear Busswork Rear	Section 1	Limited visibility		P
22	Main Electric Room	Switchgear Busswork Rear	Section 2	Limited visibility		P
23	Main Electric Room	Switchgear Busswork Rear	Section 3	Limited visibility		P
24	Main Electric Room	Switchgear Busswork Rear	Section 4	Limited visibility		P
25	Main Electric Room	Switchgear Busswork Rear	Section 5	Limited visibility		P
26	Main Electric Room	Switchgear Busswork Rear	Section 6	Limited visibility		P
27	Main Electric Room	Switchgear Busswork Rear	Section 7	Limited visibility	4	F
28	Main Electric Room	Switchgear - 2000A Fused DS	SW #2	Y	3	F
29	Main Electric Room	Switchgear Fuse Board	SWBD #1	Y	3	P
30	Main Electric Room	Switchgear Fuse Board	SWBD #1	Y	3	P
31	Main Electric Room	Switchgear Fuse Board	SWBD #1	Y	4	P
32	Main Electric Room	Switchgear Fuse Board	SWBD #2	Y		P
33	Main Electric Room	60A Fused Disconnect Switch	MPNL -1A	N		P
34	Main Electric Room	400A Fused Disconnect Switch	Tamarind	Y		P
35	**Boiler Room**	60A Disconnect Switch	Pump 1	Y	4	P

36	Boiler room	60A Disconnect Switch	Pump 2	Y	4	P
37	**Elevator Room #2**	200A Fused Disconnect Switch	Car 3	Y	3	F
38	Elevator Room #2	200A Fused Disconnect Switch	Car 4	Y		P
39	Elevator Room #2	Control Cabinet	Car 3	Y		P
40	Elevator Room #2	Control Cabinet	Car 4	Y		P
41	**Elevator Room #1**	100A Fused Disconnect Switch	Car #1	Y		P
42	Elevator Room #1	100A Fused Disconnect Switch	Car #2	Y		P
43	Elevator Room #1	Control Cabinet	Car #1	Y	1	P
44	Elevator Room #1	Control Cabinet	Car #2	Y		P
45	**17th Floor Electric Closet**	Circuit Breaker Panel	PP-17-A	Y		P
46	17th Floor Electric Closet	Circuit Breaker Panel	RP-17-B	Y		P
47	**16th Floor Electric Closet**	Circuit Breaker Panel	PP-16-A	Y		P
48	16th Floor Electric Closet	Circuit Breaker Panel	RP-16-B	Y		P
49	**15th Floor Electric Closet**	Circuit Breaker Panel	PP-15-A	Y		P
50	15th Floor Electric Closet	Circuit Breaker Panel	RP-15-A	Y		P
51	15th Floor Electric Closet	200A Fused Disconnect Switch	MAIN	Y	3	F
52	**14 Floor Electrical Closet**	Circuit Breaker Panel	Panel #1	Y		P
53	14 Floor Electrical Closet	Circuit Breaker Panel	Panel #2	Y		P
54	14 Floor Electrical Closet	CT Cabinet		Y		P
55	14 Floor Electrical Closet	200A Fused Disconnect Switch	Panel #3	Y	4	F
56	**12th Floor Electrical Closet**	CT Cabinet		Y		P
57	12th Floor Electrical Closet	200A Fused Disconnect Switch	AC1	Y	3	P
58	12th Floor Electrical Closet	Circuit Breaker Panel	Panel A	Y		P
59	12th Floor Electrical Closet	Circuit Breaker Panel	Panel B	Y		P
60	12th Floor Electrical Closet	Circuit Breaker Panel	Panel C	Y		P
61	12th Floor Electrical Closet	100A Fused Disconnect Switch	AC 2	Y		P
62	**11th Floor Electrical Closet**	CT Cabinet		Y		P
63	11th Floor Electrical Closet	400A Fused Disconnect Switch		Y		P
64	11th Floor Electrical Closet	Circuit Breaker Panel	Panel A	Y		P
65	11th Floor Electrical Closet	Circuit Breaker Panel	Panel B	Y		P
66	**10th Floor Electrical Closet**	CT Cabinet		Y		P
67	10th Floor Electrical Closet	400A Fused Disconnect Switch		Y		P
68	10th Floor Electrical Closet	Circuit Breaker Panel	LP10 A	Y		P
69	10th Floor Electrical Closet	Circuit Breaker Panel	LP10 B	Y		P
70	**9th Floor Electrical Closet**	Circuit Breaker Panel	9A	Y		P
71	9th Floor Electrical Closet	Circuit Breaker Panel	9B	Not insp.- Bad cover		P
72	9th Floor Electrical Closet	400A Fused Disconnect Switch		Y		P

73	**8th Floor Electrical Closet**	Circuit Breaker Panel	LP 4A	Not insp.- Bad cover		P
74	8th Floor Electrical Closet	Circuit Breaker Panel	LP 4	Not insp.- Bad cover		P
75	8th Floor Electrical Closet	Circuit Breaker Panel	1	Y		P
76	8th Floor Electrical Closet	200A Fused Disconnect Switch		Y		P
77	8th Floor Electrical Closet	100A Fused Disconnect Switch		Y		P
78	**7th Floor Electrical Closet**	400A Fused Disconnect Switch	AC 1&2	Y		P
79	7th Floor Electrical Closet	Circuit Breaker Panel	1	Y		P
80	7th Floor Electrical Closet	Circuit Breaker Panel	2	Not insp.- Bad cover		P
81	**6th Floor Electrical Closet**	CT Cabinet		Y		P
82	6th Floor Electrical Closet	400A Fused Disconnect Switch		Y		P
83	7th Floor Electrical Closet	Circuit Breaker Panel	PP1	Y	2	P
84	8th Floor Electrical Closet	Circuit Breaker Panel	PP2	Y		P
85	**5th Floor Electrical Closet**	400A Fused Disconnect Switch		Y		P
86	5th Floor Electrical Closet	Circuit Breaker Panel	PL-1	Y		P
87	6th Floor Electrical Closet	Circuit Breaker Panel	PL-2	Y	1	P
88	**4th Floor Electrical Closet**	CT Cabinet		Y		P
89	4th Floor Electrical Closet	400A Fused Disconnect Switch		Y		P
90	5th Floor Electrical Closet	Circuit Breaker Panel	A	Y	4	F
91	6th Floor Electrical Closet	Circuit Breaker Panel	B	Y		P
92	**3rd Floor Electrical Closet**	400A Fused Disconnect Switch		Y		P
93	3rd Floor Electrical Closet	Circuit Breaker Panel	A	Y		P
94	3rd Floor Electrical Closet	Circuit Breaker Panel	B	Y		P
95	**2nd Floor Electrical Closet**	CT Cabinet		Y		P
96	2nd Floor Electrical Closet	Circuit Breaker Panel	A	Y	3	F
97	2nd Floor Electrical Closet	Circuit Breaker Panel	B	Y		P

Image summary				
Picture #	Location	Equipment #	Equipment Description	Priority
17	Main Electric Room	14th Floor	Switchgear - 400A Fused DS	4
18	Main Electric Room	16th Floor	Switchgear - 400A Fused DS	4
19	Main Electric Room	15th Floor	Switchgear - 400A Fused DS	4
20	Main Electric Room	17th Floor	Switchgear - 400A Fused DS	4
27	Main Electric Room	Section 7	Switchgear Busswork Rear	4
28	Main Electric Room	SW #2	Switchgear - 2000A Fused DS	3
29	Main Electric Room	SWBD #1	Switchgear Fuse Board	3
30	Main Electric Room	SWBD #1	Switchgear Fuse Board	3
31	Main Electric Room	SWBD #1	Switchgear Fuse Board	4
35	Boiler Room	Pump 1	60A Disconnect Switch	4
36	Boiler room	Pump 2	60A Disconnect Switch	4
37	Elevator Room #2	Car 3	200A Fused Disconnect Switch	3
43	Elevator Room #1	Car #1	Control Cabinet	1
51	15th Floor Electric Closet	MAIN	200A Fused Disconnect Switch	3
55	14 Floor Electrical Closet	Panel #3	200A Fused Disconnect Switch	4
57	12th Floor Electrical Closet	AC1	200A Fused Disconnect Switch	3
83	7th Floor Electrical Closet	PP1	Circuit Breaker Panel	2
87	6th Floor Electrical Closet	PL-2	Circuit Breaker Panel	1
90	5th Floor Electrical Closet	A	Circuit Breaker Panel	4
96	2nd Floor Electrical Closet	A	Circuit Breaker Panel	3

No.	17	**Job Number**		**Equip #**	14th Floor
Location	Main Electric Room			**Wind Speed**	Indoor
Equipment	Switchgear - 400A Fused DS			**From**	
Lens	1X	Filter	None		
Rated Load (Amps)		**Meas. (Amps)**		% load	
		Degree Rise (C°)		**Rise Over**	Ambient

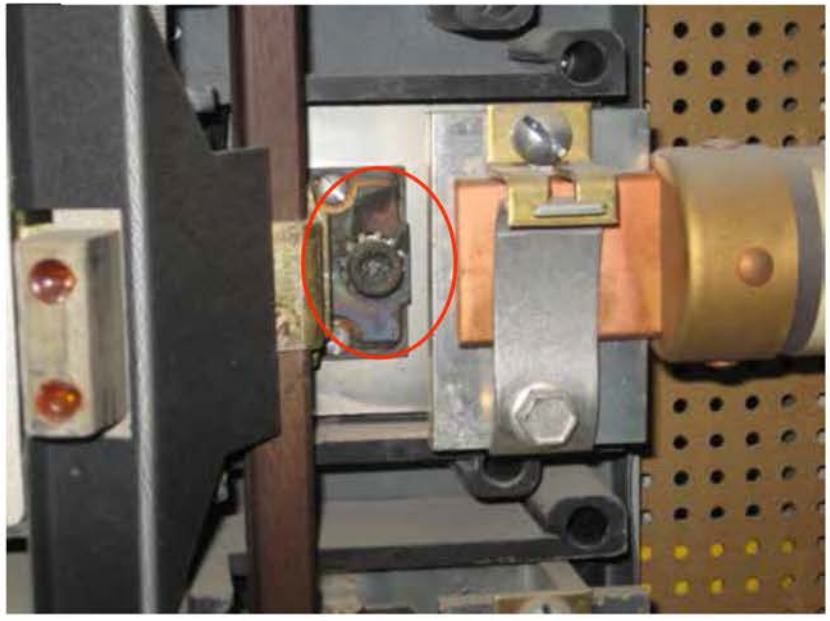
Amps "A"=	
Amps "B"=	
Amps "C"=	

"B" phase screw appeared to once have been overheated, same for all "B" screws in this section of Switchgear equipment, not hot at time of Infrared inspection

Obj Priority NETA		**Subj. Priority**	4	**Avg Priority**	4
Obj Pr. Ex-Based		**Subj. Priority**		**Avg Priority**	

Repair Chk Date			Rise Over

CORRECTIVE ACTION
Possible deficiency; warrants investigation



RESERVED FOR THERMOGRAM AFTER COMPONENT REPAIR

No.	18	**Job Number**		**Equip #**	16th Floor
Location	Main Electric Room			**Wind Speed**	Indoor
Equipment	Switchgear - 400A Fused DS			**From**	
Lens	1X	Filter	None		
Rated Load (Amps)		**Meas. (Amps)**		% load	
		Degree Rise (C°)		**Rise Over**	Ambient

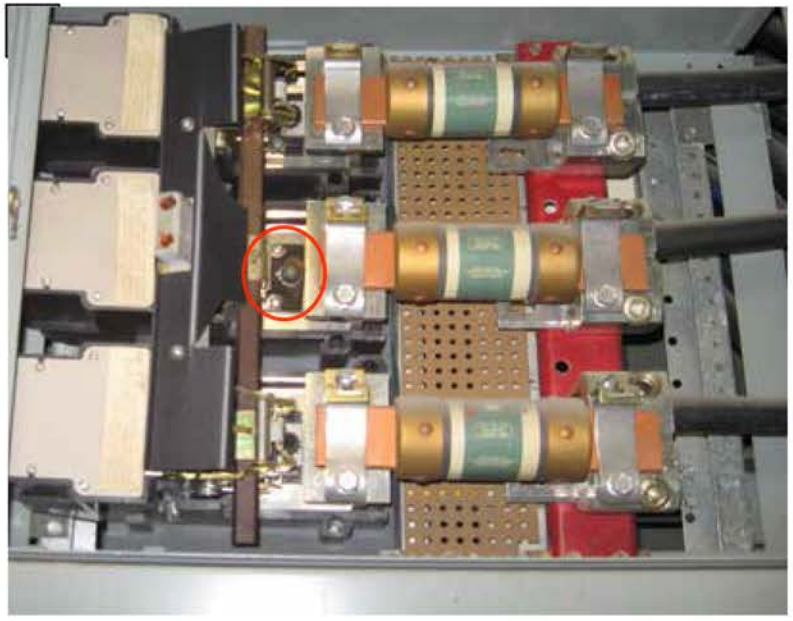
Amps "A"=	
Amps "B"=	
Amps "C"=	

"B" phase screw appeared to once have been overheated, same for all "B" screws in this section of Switchgear equipment, not hot at time of Infrared inspection

Obj Priority NETA		**Subj. Priority**	4	**Avg Priority**	4
Obj Pr. Ex-Based		**Subj. Priority**		**Avg Priority**	

Repair Chk Date			Rise Over

CORRECTIVE ACTION
Possible deficiency; warrants investigation



RESERVED FOR THERMOGRAM AFTER COMPONENT REPAIR

No.	19	**Job Number**		**Equip #**	15th Floor
Location	Main Electric Room			**Wind Speed**	Indoor
Equipment	Switchgear - 400A Fused DS			**From**	
Lens	1X	Filter	None		
Rated Load (Amps)		**Meas. (Amps)**		% load	
		Degree Rise (C°)		**Rise Over**	Ambient

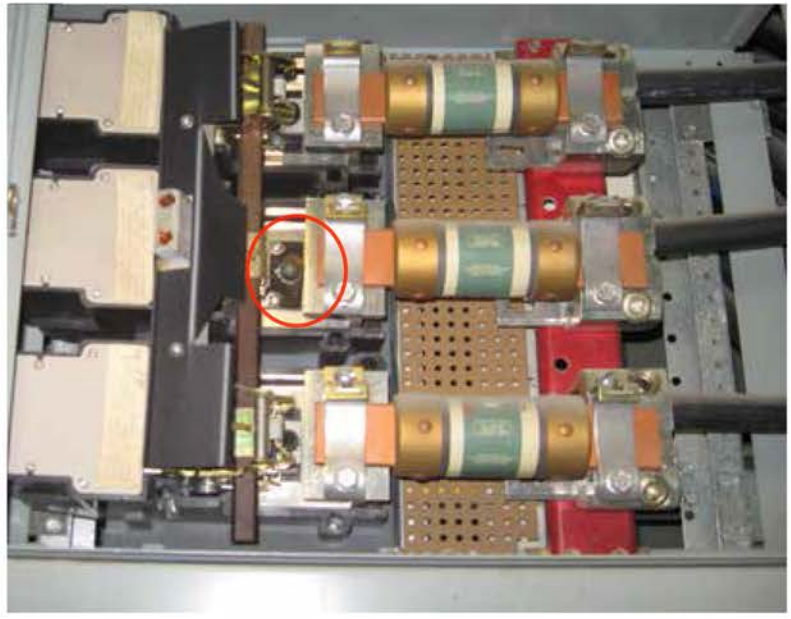
Amps "A"=	
Amps "B"=	
Amps "C"=	

"B" phase screw appeared to once have been overheated, same for all "B" screws in this section of Switchgear equipment, not hot at time of Infrared inspection

Obj Priority NETA		**Subj. Priority**	4	**Avg Priority**	4
Obj Pr. Ex-Based		**Subj. Priority**		**Avg Priority**	

Repair Chk Date			Rise Over

CORRECTIVE ACTION
Possible deficiency; warrants investigation



RESERVED FOR THERMOGRAM AFTER COMPONENT REPAIR

No.	20	**Job Number**		**Equip #**	17th Floor
Location	Main Electric Room			**Wind Speed**	Indoor
Equipment	Switchgear - 400A Fused DS			**From**	
Lens	1X	Filter	None		
Rated Load (Amps)		**Meas. (Amps)**		% load	
		Degree Rise (C°)		**Rise Over**	

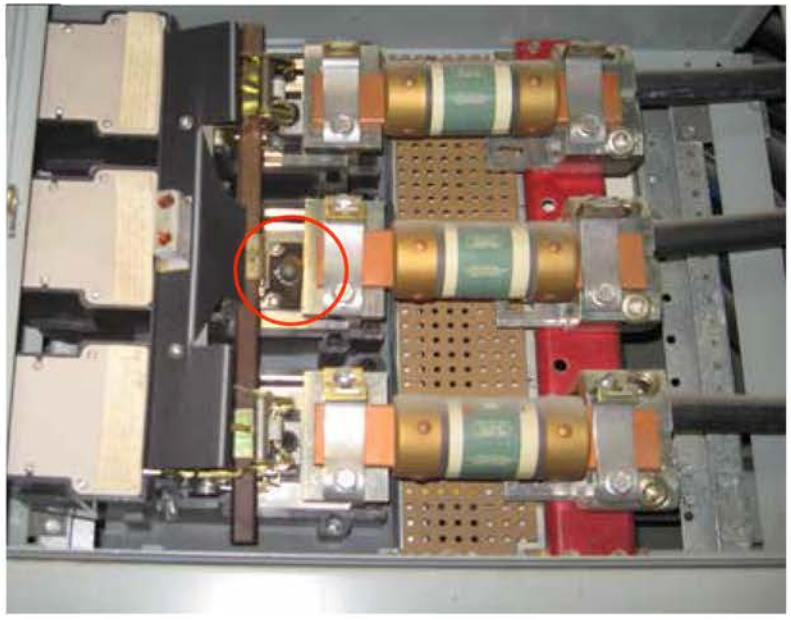
Amps "A"=	
Amps "B"=	
Amps "C"=	

"B" phase screw appeared to once have been overheated, same for all "B" screws in this section of Switchgear equipment, not hot at time of Infrared inspection

Obj Priority NETA		**Subj. Priority**	4	**Avg Priority**	4
Obj Pr. Ex-Based		**Subj. Priority**		**Avg Priority**	

Repair Chk Date			Rise Over

CORRECTIVE ACTION
Possible deficiency; warrants investigation



RESERVED FOR THERMOGRAM AFTER COMPONENT REPAIR

No.	27	**Job Number**		**Equip #**	Section 7
Location	Main Electric Room			**Wind Speed**	
Equipment	Switchgear Busswork Rear			**From**	
Lens	1X	Filter	None		
Rated Load (Amps)		**Meas. (Amps)**		% load	
		Degree Rise (C°)		**Rise Over**	

Amps "A"=	
Amps "B"=	
Amps "C"=	
	Rust and corrosion on buss work and bolts, rust on top of cabinet, did water once drip down onto this gear?

Obj Priority NETA		**Subj. Priority**	4	**Avg Priority**	4
Obj Pr. Ex-Based		**Subj. Priority**		**Avg Priority**	

Repair Chk Date			Rise Over

CORRECTIVE ACTION
Possible deficiency; warrants investigation

No.	28	**Job Number**		**Equip #**	SW #2
Location	Main Electric Room			**Wind Speed**	Indoor
Equipment	Switchgear - 2000A Fused DS			**From**	
Lens	1X	Filter	None		
Rated Load (Amps)		**Meas. (Amps)**		% load	
		Degree Rise (C°)		**Rise Over**	

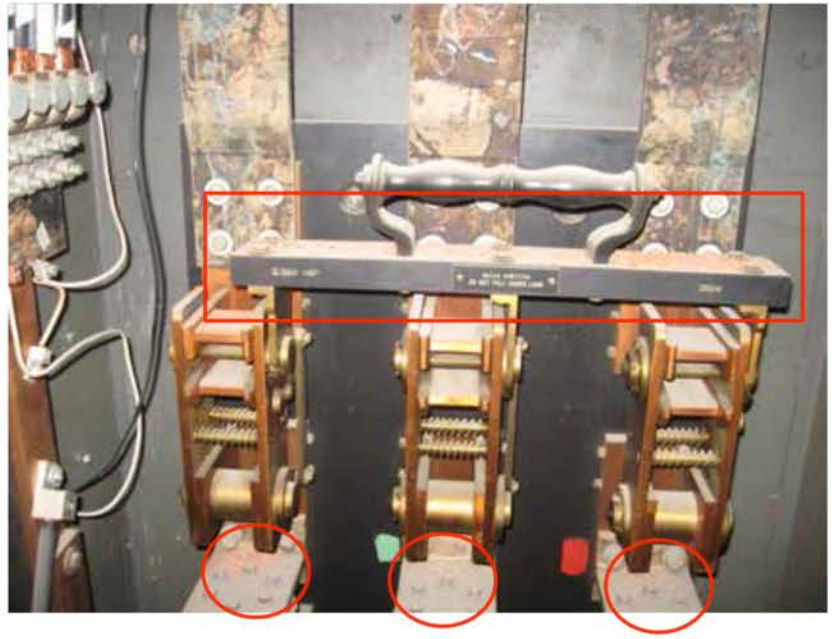
Amps "A"=	
Amps "B"=	
Amps "C"=	

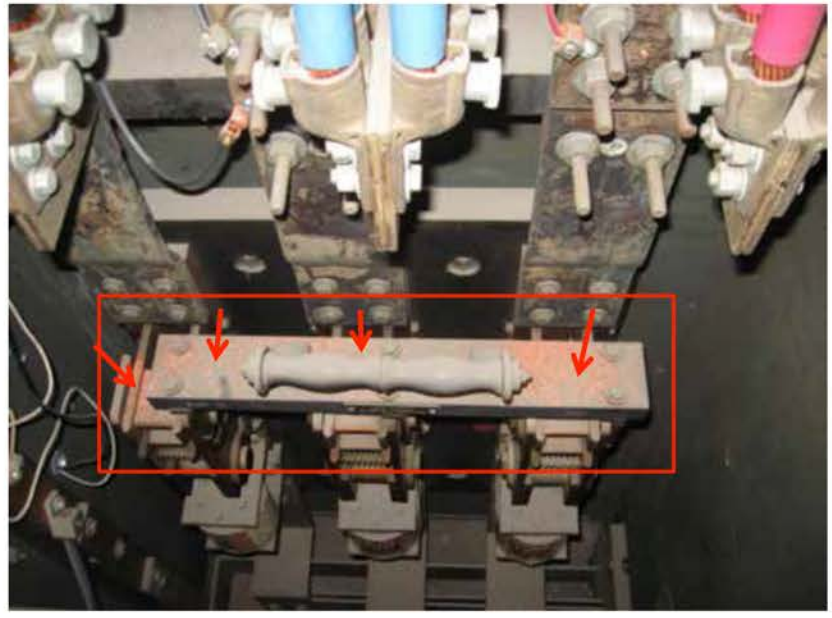
Copper shavings on switch, these could cause an arc flash when opening the switch. Recommend not operating switch until shavings are removed.

Obj Priority NETA		**Subj. Priority**	3	**Avg Priority**	3
Obj Pr. Ex-Based		**Subj. Priority**		**Avg Priority**	

Repair Chk Date			Rise Over

CORRECTIVE ACTION
Indicates probable deficiency; repair as time permits





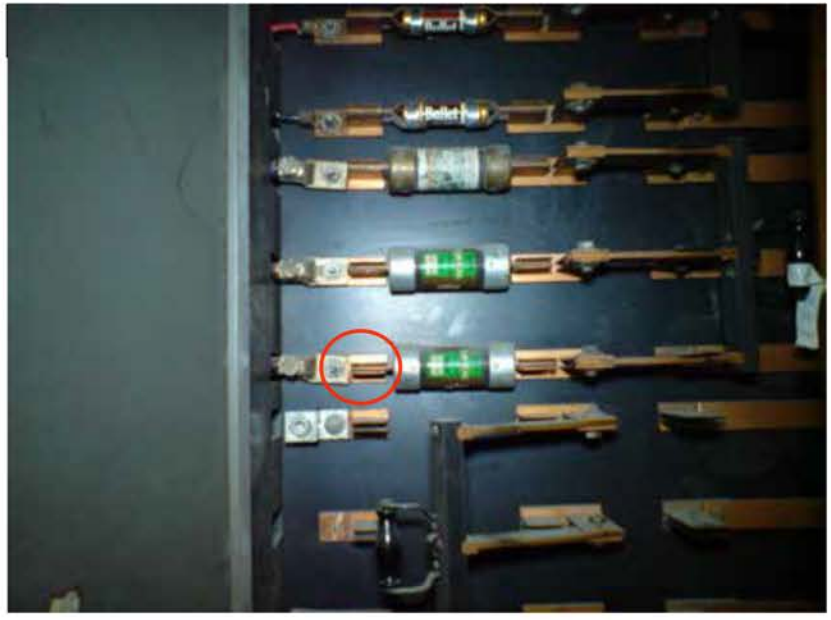
No.	29	**Job Number**		**Equip #**	SWBD #1
Location	Main Electric Room			**Wind Speed**	Indoor
Equipment	Switchgear Fuse Board			**From**	
Lens	1X	Filter	None		
Rated Load (Amps)	100A	**Meas. (Amps)**	NA	% load	
		Degree Rise (C°)	3.1	**Rise Over**	Similar component/load

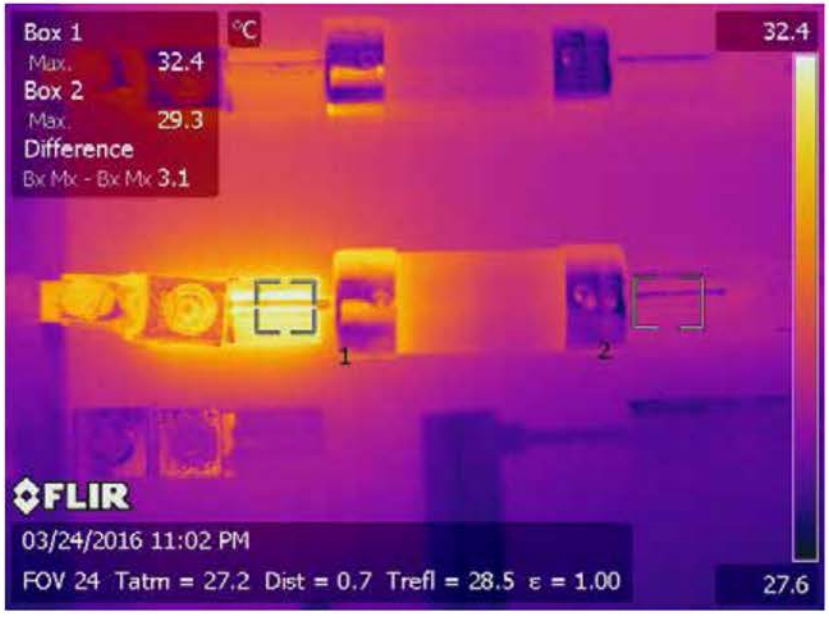
Amps "A"=	NA	**Possible issue with fuse clip or connection on "B" phase", check and confirm repair.**
Amps "B"=		
Amps "C"=		

Obj Priority NETA	3	**Subj. Priority**		**Avg Priority**	3
Obj Pr. Ex-Based		**Subj. Priority**		**Avg Priority**	

Repair Chk Date			Rise Over

CORRECTIVE ACTION
Indicates probable deficiency; repair as time permits





RESERVED FOR THERMOGRAM AFTER COMPONENT REPAIR

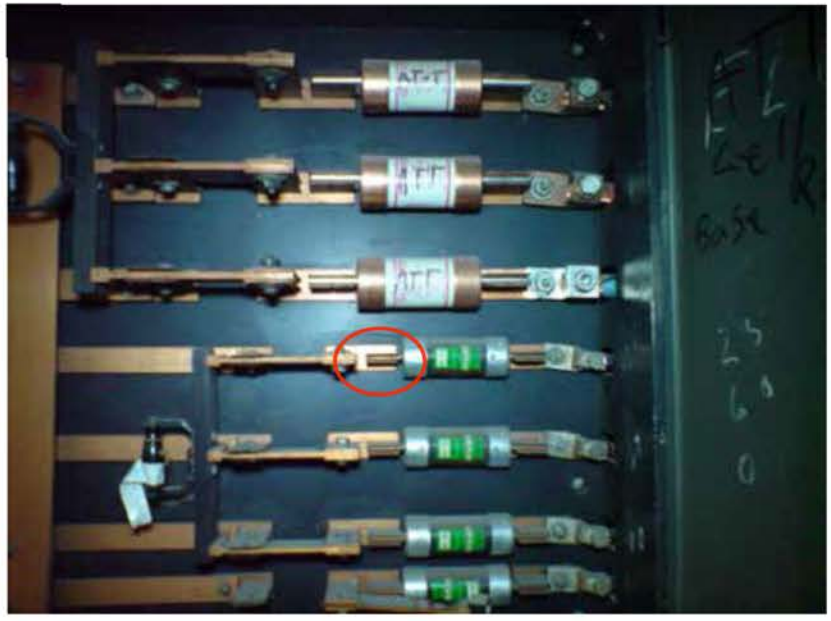
No.	30	**Job Number**		**Equip #**	SWBD #1
Location	Main Electric Room			**Wind Speed**	Indoor
Equipment	Switchgear Fuse Board			**From**	
Lens	1X	Filter	None		
Rated Load (Amps)	200A	**Meas. (Amps)**	NA	% load	
		Degree Rise (C°)	11.3	**Rise Over**	Similar component/load

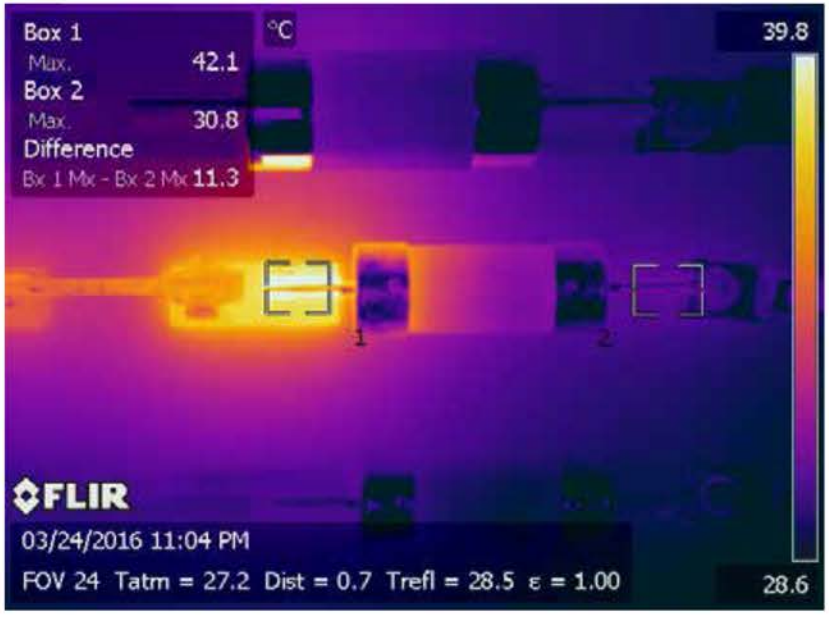
Amps "A"=	NA	**Possible issue with fuse clip, or connection on "A" phase", check and confirm repair.**
Amps "B"=		
Amps "C"=		

Obj Priority NETA	3	**Subj. Priority**		**Avg Priority**	3
Obj Pr. Ex-Based		**Subj. Priority**		**Avg Priority**	

Repair Chk Date			Rise Over

CORRECTIVE ACTION
Indicates probable deficiency; repair as time permits





RESERVED FOR THERMOGRAM AFTER COMPONENT REPAIR

No.	31	**Job Number**		**Equip #**	SWBD #1		
Location	Main Electric Room			**Wind Speed**	Indoor		
Equipment	Switchgear Fuse Board			**From**			
Lens	1X	Filter	None				
Rated Load (Amps)	200A	**Meas. (Amps)**	NA	% load			
		Degree Rise (C°)	3.2	**Rise Over**	Ambient		

Amps "A"=	**Possible issue with fuse clip, or connection on "A" phase", check and confirm repair.**
Amps "B"=	
Amps "C"=	**Possible issue with switch conact (red arrow).**

Obj Priority NETA	4	**Subj. Priority**		**Avg Priority**	4
Obj Pr. Ex-Based		**Subj. Priority**		**Avg Priority**	

Repair Chk Date			Rise Over

CORRECTIVE ACTION
Possible deficiency; warrants investigation

RESERVED FOR THERMOGRAM AFTER COMPONENT REPAIR

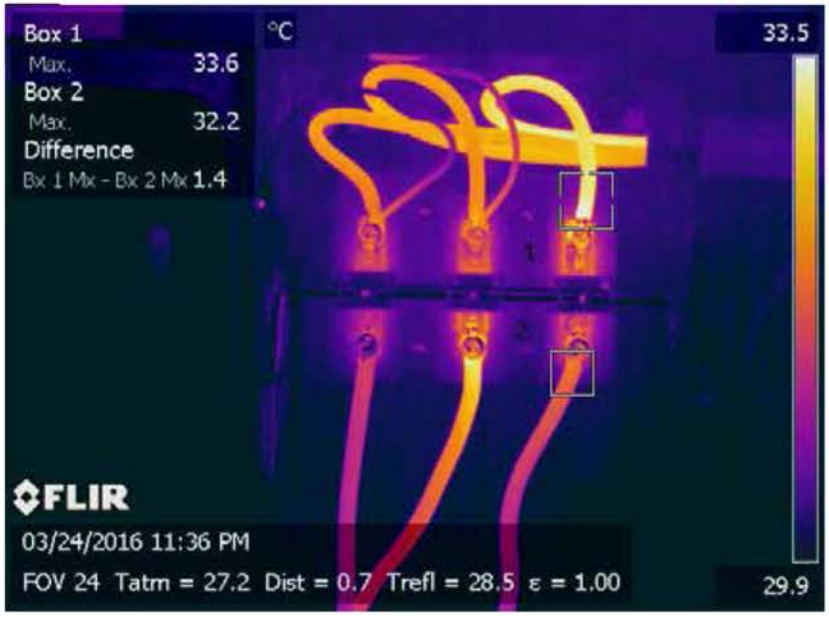
No.	35	**Job Number**		**Equip #**	Pump 1		
Location	Boiler Room			**Wind Speed**	Indoor		
Equipment	60A Disconnect Switch			**From**			
Lens	1X	Filter	None				
Rated Load (Amps)	60	**Meas. (Amps)**	36	% load	60.00%		
	Degree Rise (C°)	1.4	**Rise Over**	Similar component/load			

Amps "A"=	36	**Enter comment**
Amps "B"=	36	
Amps "C"=	36	**Temp rise is small, but could not run pumps for adequate time to allow switch to heat up. Recommend to tighten all connections and clean switch.**

Obj Priority NETA	4	**Subj. Priority**		**Avg Priority**	4
Obj Pr. Ex-Based		**Subj. Priority**		**Avg Priority**	

Repair Chk Date			Rise Over

CORRECTIVE ACTION
Possible deficiency; warrants investigation



RESERVED FOR THERMOGRAM AFTER COMPONENT REPAIR

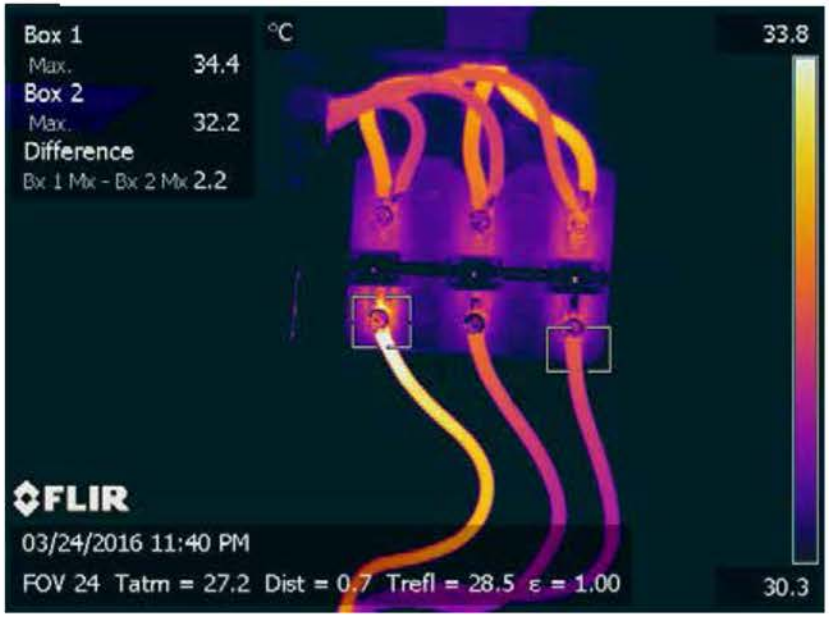
No.	36	**Job Number**		**Equip #**	Pump 2		
Location	Boiler room			**Wind Speed**	Indoor		
Equipment	60A Disconnect Switch			**From**			
Lens	1X	Filter	None				
Rated Load (Amps)	60	**Meas. (Amps)**	33	% load	55.00%		
		Degree Rise (C°)	2.2	**Rise Over**	"C" Phase		

Amps "A"=	33	**Enter comment**
Amps "B"=	33	
Amps "C"=	33	**Temp rise is small, but could not run pumps for adequate time to allow switch to heat up. Recommend to tighten all connections and clean switch.**

Obj Priority NETA	4	**Subj. Priority**		**Avg Priority**	4
Obj Pr. Ex-Based		**Subj. Priority**		**Avg Priority**	

Repair Chk Date			Rise Over

CORRECTIVE ACTION
Possible deficiency; warrants investigation



RESERVED FOR THERMOGRAM AFTER COMPONENT REPAIR

No.	37	**Job Number**		**Equip #**	Car 3
Location	Elevator Room #2			**Wind Speed**	Indoor
Equipment	200A Fused Disconnect Switch			**From**	
Lens	1X	Filter	None		
Rated Load (Amps)		**Meas. (Amps)**		% load	
		Degree Rise (C°)		**Rise Over**	

Amps "A"=	150	**Enter comment**
Amps "B"=	150	
Amps "C"=	200	**Mismatched fuse on "C". "A" and "B" are 150A. "C" should be 150A, is 200A. "C" also looked burnt, recommend correct fuse and clean/service switch**

Obj Priority NETA		**Subj. Priority**	3	**Avg Priority**	3
Obj Pr. Ex-Based		**Subj. Priority**		**Avg Priority**	

Repair Chk Date			Rise Over

CORRECTIVE ACTION
Indicates probable deficiency; repair as time permits

RESERVED FOR THERMOGRAM AFTER COMPONENT REPAIR

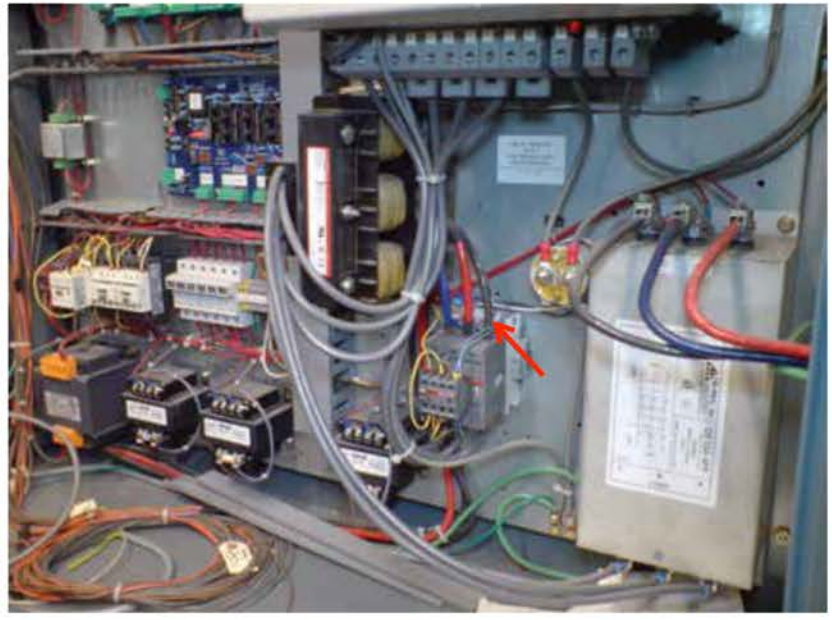
No.	43	**Job Number**		**Equip #**	Car #1
Location	Elevator Room #1			**Wind Speed**	Indoor
Equipment	Control Cabinet			**From**	
Lens	1X	Filter	None		
Rated Load (Amps)		**Meas. (Amps)**		% load	
		Degree Rise (C°)	19.2	**Rise Over**	"A" Phase

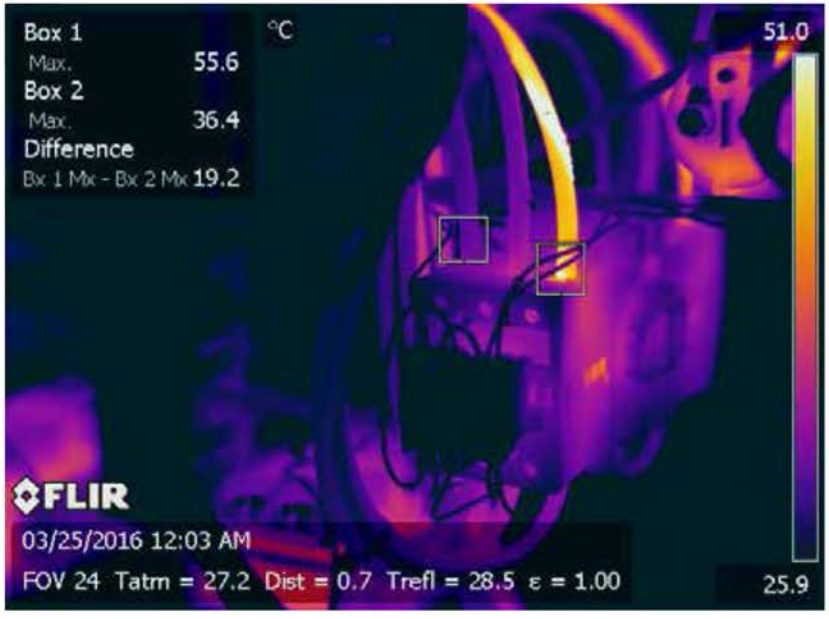
Amps "A"=		**Enter comment**
Amps "B"=		
Amps "C"=	NA	**Warm connection on "C" phase (Ctrl cabinet on the right)**

Obj Priority NETA	1	**Subj. Priority**		**Avg Priority**	1
Obj Pr. Ex-Based		**Subj. Priority**		**Avg Priority**	

Repair Chk Date				Rise Over	

CORRECTIVE ACTION
Major discrepancy; repair immediately





RESERVED FOR THERMOGRAM AFTER COMPONENT REPAIR

No.	51	**Job Number**		**Equip #**	MAIN
Location	15th Floor Electric Closet			**Wind Speed**	Indoor
Equipment	200A Fused Disconnect Switch			**From**	
Lens	1X	Filter	None		
Rated Load (Amps)		**Meas. (Amps)**		% load	
		Degree Rise (C°)		**Rise Over**	

Amps "A"=	**Enter comment**
Amps "B"=	
Amps "C"=	**Missing ground. "B" phase wire corroded.. "B" phase fuse discolored. This switch appeared to have been overheated. Not hot at time of infrared inspection, recommend servicing switch.**

Obj Priority NETA		**Subj. Priority**	3	**Avg Priority**	3
Obj Pr. Ex-Based		**Subj. Priority**		**Avg Priority**	

Repair Chk Date			Rise Over

CORRECTIVE ACTION
Indicates probable deficiency; repair as time permits

No.	55	**Job Number**		**Equip #**	Panel #3
Location	14 Floor Electrical Closet			**Wind Speed**	Indoor
Equipment	200A Fused Disconnect Switch			**From**	
Lens	1X	Filter	None		
Rated Load (Amps)		**Meas. (Amps)**		% load	
		Degree Rise (C°)		**Rise Over**	

Amps "A"=	**Enter comment**
Amps "B"=	
Amps "C"=	**No Bushing, Electrician says this is a safety violation**

Obj Priority NETA		**Subj. Priority**	4	**Avg Priority**	4
Obj Pr. Ex-Based		**Subj. Priority**		**Avg Priority**	

Repair Chk Date			Rise Over	

CORRECTIVE ACTION
Possible deficiency; warrants investigation

RESERVED FOR THERMOGRAM AFTER COMPONENT REPAIR

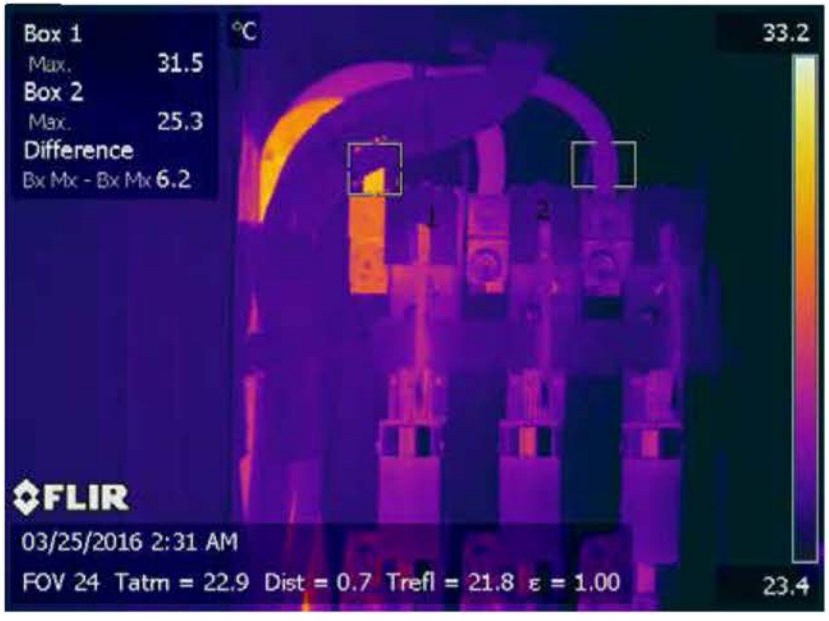
No.	57	**Job Number**		**Equip #**	AC1		
Location	12th Floor Electrical Closet			**Wind Speed**	Indoor		
Equipment	200A Fused Disconnect Switch			**From**			
Lens	1X	Filter	None				
Rated Load (Amps)	200	**Meas. (Amps)**	11	% load	5.50%		
		Degree Rise (C°)	6.2	**Rise Over**	"C" Phase		

Amps "A"=	11	**Enter comment**
Amps "B"=	11	
Amps "C"=	12	**Possible loose connection on "A" phase**

Obj Priority NETA	3	**Subj. Priority**		**Avg Priority**	3
Obj Pr. Ex-Based		**Subj. Priority**		**Avg Priority**	

Repair Chk Date			Rise Over

CORRECTIVE ACTION
Indicates probable deficiency; repair as time permits



RESERVED FOR THERMOGRAM AFTER COMPONENT REPAIR

No.	83	**Job Number**		**Equip #**	PP1
Location	7th Floor Electrical Closet			**Wind Speed**	Indoor
Equipment	Circuit Breaker Panel			**From**	
Lens	1X	Filter	None		
Rated Load (Amps)	30	**Meas. (Amps)**		% load	
		Degree Rise (C°)		**Rise Over**	

Amps "A"=	**Enter comment**
Amps "B"=	
Amps "C"=	**Burnt backplane screw on breaker #9, not hot at time of infrared inspection, recommend replace breaker**

Obj Priority NETA		**Subj. Priority**	2	**Avg Priority**	2
Obj Pr. Ex-Based		**Subj. Priority**		**Avg Priority**	

Repair Chk Date			Rise Over

CORRECTIVE ACTION
Monitor until corrective measures can be accomplished

RESERVED FOR THERMOGRAM AFTER COMPONENT REPAIR

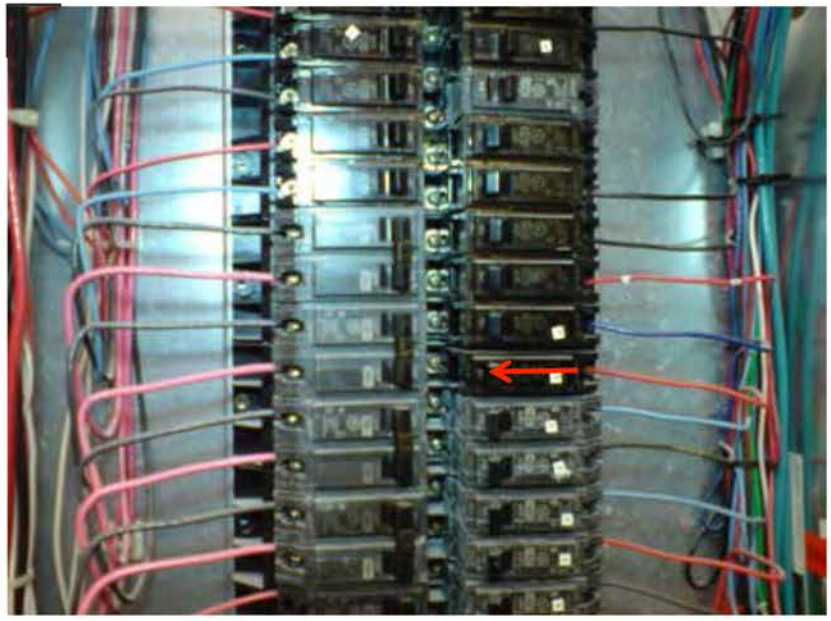
No.	87	**Job Number**		**Equip #**	PL-2		
Location	6th Floor Electrical Closet			**Wind Speed**	Indoor		
Equipment	Circuit Breaker Panel			**From**			
Lens	1X	Filter	None				
Rated Load (Amps)	20	**Meas. (Amps)**	4.7	% load	23.50%		
		Degree Rise (C°)	47.2	**Rise Over**	Ambient		

Amps "A"=	**Possible issue with breaker and backplane connection, check and confirm repair.**
Amps "B"=	
Amps "C"=	**Possible issue with connection to backplane or internal breaker issue #20, recommend replace breaker.**

Obj Priority NETA	1	**Subj. Priority**		**Avg Priority**	1
Obj Pr. Ex-Based		**Subj. Priority**		**Avg Priority**	

Repair Chk Date			Rise Over

CORRECTIVE ACTION
Major discrepancy; repair immediately



RESERVED FOR THERMOGRAM AFTER COMPONENT REPAIR

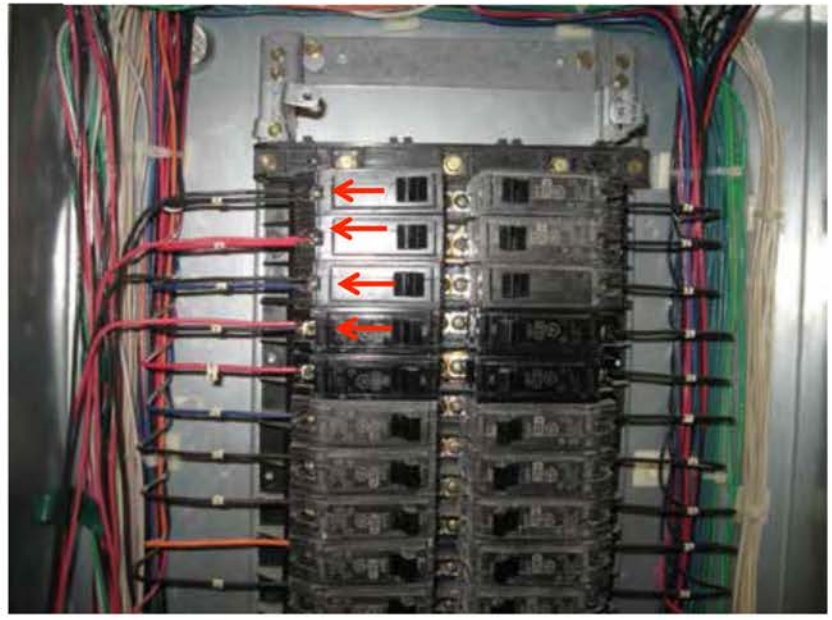
No.	90	**Job Number**		**Equip #**	A
Location	5th Floor Electrical Closet			**Wind Speed**	Indoor
Equipment	Circuit Breaker Panel			**From**	
Lens	1X	Filter	None		
Rated Load (Amps)		**Meas. (Amps)**		% load	
		Degree Rise (C°)		**Rise Over**	

Amps "A"=	**Enter comment**
Amps "B"=	
Amps "C"=	**Two wires on one breaker - Electrician states this is a code violation**

Obj Priority NETA		**Subj. Priority**	4	**Avg Priority**	4
Obj Pr. Ex-Based		**Subj. Priority**		**Avg Priority**	

Repair Chk Date			Rise Over

CORRECTIVE ACTION
Possible deficiency; warrants investigation



RESERVED FOR THERMOGRAM AFTER COMPONENT REPAIR

No.	96	**Job Number**		**Equip #**	A
Location	2nd Floor Electrical Closet			**Wind Speed**	Indoor
Equipment	Circuit Breaker Panel			**From**	
Lens	1X	Filter	None		
Rated Load (Amps)		**Meas. (Amps)**		% load	
		Degree Rise (C°)		**Rise Over**	

Amps "A"=	**Enter comment**
Amps "B"=	
Amps "C"=	**Burnt backplane screws on #15 and #17, not hot at time of infrared inspection, recommend replace breaker**

Obj Priority NETA		**Subj. Priority**	3	**Avg Priority**	3
Obj Pr. Ex-Based		**Subj. Priority**		**Avg Priority**	

Repair Chk Date			Rise Over

CORRECTIVE ACTION
Indicates probable deficiency; repair as time permits

RESERVED FOR THERMOGRAM AFTER COMPONENT REPAIR