



DYNA SCAN  
Technical Services

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## Infrared Thermographic Inspection

Provided for

.....G5AD@

Report Date: 10/26/2017

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### Infrared Thermography

- Electrical Inspections
- Mechanical Inspections
- Roof Moisture Analysis
- Building Envelope / Heat Loss

### Power Quality Consulting

- Power Quality Surveys
- Load Studies
- Harmonic Content Analysis
- Power Metering

### Electrical Mapping/Documentation

- 1-Line Electrical Drawings
  - Panel Schedules
  - Panel Identification / Labeling
-



**Current Inspection No: 4213**  
**Report Date: 10/26/2017**  
**Inspected By : O'Brien, TJ**

Recently, a Dyna Scan Thermographer performed an Infrared Thermographic Inspection of the electrical distribution system at your facility. The objective of this inspection was to expose temperature extremes, which could be indicative of problems and defects in the electrical system.

An Infrared Imager detects radiated energy as heat emanating from the target. In utilizing this tool for examining electrical power circuitry, it must be recognized that temperatures indicative of defects will normally be observed only in circuits which are normally or heavily loaded. Scanning lightly loaded or de-energized circuits may produce inconclusive results.

This report is set up to list all distribution panels and current carrying devices in an organized manner. The electrical equipment and the results of the inspection are listed for each location. A defect report is provided for each problem area found during the inspection. This defect report includes a load analysis, a visual inspection comment, and recommendations for corrective action.

The report summary on the following page is an arbitrary guideline intended to provide perspective with respect to temperature differences between target areas and reference points. Take note that many variables may affect the temperature differences, most notably the ambient temperature, wind speed and circuit load.

Many electrical panels such as switchboards and motor control centers contain multiple circuits that may or may not be de-energized at the time of inspection. Dyna Scan technicians will identify in the equipment inventory in this report when it is obvious that equipment is not running at time of inspection. However, without taking load readings on every circuit in each individual panel, it is impossible to identify all equipment and circuits that are not under load.

If you should have any questions regarding the scan or this report, feel free to contact our office at any of the numbers below. We appreciate the opportunity to be of service to you and look forward to working with you in the future.

Sincerely,

Jim O'Brien - Director of Operations  
Dyna Scan Technical Services  
(513) 245-5951

**NOTE-**In the course of an Infrared Thermography Inspection on electrical distribution equipment, many times circuits are reported as being "overloaded." In general this statement is made on the basis of instantaneous amperage readings which have been found to be in excess of 80% of the overcurrent devices nameplate rating. In accordance to the National Electrical Code Articles 210-22(c) and 384-16(c) the total load on an overcurrent device shall not exceed 80% of its rating where in normal operation the load will continue for 3 hours or more (See NEC for exceptions).



Current Inspection No: 4213      October 9, 2017

Previous Inspection No:

Report Date: 10/26/2017

**Overview:**

The Infrared Electrical Inspection was performed by Dyna Scan Technical Services, by a certified Infrared Thermographer. All of the items inspected are listed in this InspecTrend report. Any anomalies are listed in order of priority based on the component's temperature rise, as measured from a reference component of equal type and load at the time of the inspection. Dyna Scan Technical Services assumes no liability directly or indirectly as a result of this inspection.

<u>Priority</u>	<u>Temp Rise</u>	<u>Current Inspection</u>	<u>Prior Inspection</u>	<u>Percent Change</u>
1-Critical 	60-Above	3 = 38%	NA	NA
2-Serious 	40 - 59	0 = 0%	NA	NA
3-Important 	11 - 39	5 = 63%	NA	NA
4-Minor 	1 - 10	0 = 0%	NA	NA
5-Normal 	0	0 = 0%	NA	NA
<b>Total Tested Problems:</b>		<b>8</b>	<b>NA</b>	<b>NA</b>

Number of New Documented Problems:	8 = 100%	NA	NA
Number of Tested re-occurring Problems:	0 = 0%	NA	NA

Number of prior problems which were Not Tested this inspection :	NA
Number of Total Open Problems :	<b>8</b>
Number of prior problems which tested Normal this inspection :	NA

**Problem Severity Definitions:**

-  Critical - Danger to life and limb, eminent danger to equipment.
-  Serious - Equipment failure is inevitable without immediate attention. Repair should be expedited ASAP
-  Important - If this is not redundant equipment, repair should be scheduled ASAP.
-  Minor - Problem is apparent and needs to be monitored on a regular basis.

## Infrared Inspection Inventory

**Current Inspection No:** 4213  
**Report Date:** 10/26/2017  
**Inspected By:** O'Brien, TJ

**Equipment Test Status Key**

TBT = To Be Tested  
 NT/NL = Not Tested/No Load  
 NT/TC = Not Tested/Time Constraint  
 NT/UR = Not Tested/Under Repair  
 NT/NA = Not Tested/Not Accessible

Equipment Type	Location / Name	Test Statu	Problem #
	LOCATION: 71 BUILDING	TESTED	
	LOCATION: BASEMENT	TESTED	
	LOCATION: MAIN SWITCHGEAR ROOM	TESTED	
ATS	ATS 1	TESTED	
ATS	ATS EQ1	TESTED	
ATS	ATS EQ3	TESTED	
Switchgear	BHNSB1 (2 Sec)	TESTED	
Distribution Panel	BHNDP1	TESTED	
Distribution Panel	BHNDP2	TESTED	
Transformer	Transformer #4	TESTED	
Transformer	Transformer #2	TESTED	
Disconnect	CT Scan	NTNL	
Disconnect	100-1-A	TESTED	
Distribution Panel	BHEDP1	NTNA	
	LOCATION: SECONDARY SWITCHGEAR ROOM	TESTED	
Distribution Panel	BHNDP4	TESTED	
Distribution Panel	BHEDP1	TESTED	
Distribution Panel	BLEQDP1	TESTED	
Switchgear	BLNSB1	TESTED	
Branch Panel	BLCRDP1	TESTED	
	LOCATION: MECHANICAL ROOM	TESTED	
Transformer	150 KVA	TESTED	
Distribution Panel	BHCRDP1	TESTED	
Transformer	75 KVA	TESTED	
Distribution Panel	BLLSDP1	TESTED	
Distribution Panel	BHEQDP1	TESTED	
MCC	MCC1	TESTED	
Starter Disconnect	Outside Sump	TESTED	
Starter Disconnect	Fire Pump ATS	TESTED	
Starter Disconnect	Fire controller	TESTED	

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Equipment Type	Location / Name	Test Statu	Problem #
LOCATION: BOILER ROOM			
Disconnect	Chiller Capacitor	TESTED	
Starter	Chiller Capacitor	TESTED	
Disconnect	Chiller Capacitor	TESTED	
Starter	Chiller Capacitor	TESTED	
MCC (3 Sec)	100/1/A/2	TESTED	
Starter	Chiller #1	TESTED	
Control Panel	Chiller #1	TESTED	
Control Panel	HTP #1	TESTED	
Control Panel	#170	TESTED	
Starter Disconnect	CWP #7	TESTED	
Starter Disconnect	CWP #8	TESTED	
Disconnect	HWP 71-02	NTNL	
Disconnect	P5	TESTED	
Disconnect	P4	TESTED	
Control Panel	McQue Chiller 2	TESTED	
Control Panel	McQue Chiller 2	TESTED	
Control Panel	Low Water Pump	TESTED	
Control Panel	Sump Pump	TESTED	
Disconnect	P3	TESTED	
Disconnect	P2	TESTED	
Disconnect	P1	TESTED	E1
LOCATION: NEW ELECTRIC ROOM			
ATS	EQ2	TESTED	
Distribution Panel	BHEQDP2	TESTED	
Disconnect	Boiler 166	TESTED	
Control Panel	Boiler 166	TESTED	
Control Panel	Condinsate Pump	TESTED	
Control Panel	Pump Right	TESTED	
Control Panel	Pump Left	TESTED	
Branch Panel	BLEQ2	TESTED	

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Equipment Type	Location / Name	Test Statu	Problem #
Starter	Ex Fan 1	TESTED	
Starter	Ex Fan 4	TESTED	
Starter	Ex Fan 7	TESTED	
Starter	Ex Fan 9	TESTED	
Control Panel	Hospital Vac (side 1)	TESTED	
Control Panel	Hospital Vac (side 2)	TESTED	
Control Panel	Med Air	TESTED	
Disconnect	Pump 1	TESTED	
Disconnect	CP #14	TESTED	
Disconnect	Pump #2	TESTED	
Starter Disconnect	Back Up Pump	TESTED	
Disconnect	Chill Water Pump	TESTED	
Disconnect	#178	TESTED	
Branch Panel	BLEQ1	TESTED	
VFD	ACU-1	TESTED	E2
Disconnect	Elevator 1	TESTED	
Disconnect	Elevator 2	TESTED	
	LOCATION: SHOP AREA	TESTED	
Branch Panel	BLEQ4	TESTED	
	LOCATION: UPS DATA CENTER	TESTED	
Control Panel	UPS	TESTED	
	LOCATION: FIRST FLOOR	TESTED	
	LOCATION: ER DEPT BUILDING CLOSET	TESTED	
Branch Panel	1LCRB	TESTED	
Branch Panel	1LNBP3	TESTED	
Branch Panel	1LNBP2	TESTED	
Branch Panel	1LLSBP2	TESTED	
	LOCATION: WOMENS IMAGING ELECT	TESTED	
Branch Panel	1LNBP12	TESTED	
Branch Panel	1LNBP11	TESTED	
Branch Panel	1LNBP10	TESTED	

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Equipment Type	Location / Name	Test Statu	Problem #
Branch Panel	1LCRBP10	TESTED	
Branch Panel	1LCRBP11	TESTED	
Branch Panel	1LLSBP10	TESTED	
	LOCATION: CT HALLWAY	TESTED	
Distribution Panel	1HNDP1	TESTED	
Branch Panel	1LNBP5	TESTED	
	LOCATION: CT ENTERANCE	TESTED	
Branch Panel	1LCRBP4	TESTED	
Branch Panel	1LNBP7	TESTED	
	LOCATION: LAB HALL	TESTED	
Branch Panel	1LCRBP3-A	TESTED	
Branch Panel	1LCRBP3-B	TESTED	
	LOCATION: LAB ROOM	TESTED	
Branch Panel	1LNBP8	TESTED	
	LOCATION: CLINICAL SUPPORT	TESTED	
Branch Panel	Unnamed	TESTED	
	LOCATION: VITALS CLOSET	TESTED	
Branch Panel	1L4	TESTED	
	LOCATION: SAME DAY SURGERY	TESTED	
Branch Panel	1LNBP1	TESTED	
Branch Panel	1LNBP2	TESTED	
Branch Panel	1LCRPB1	TESTED	
Branch Panel	1LLSBP1	TESTED	
	LOCATION: RADIOLOGY BREAK AREA	TESTED	
Branch Panel	1LCRBP2	TESTED	
	LOCATION: SECOND FLOOR	TESTED	
	LOCATION: OB	TESTED	
Branch Panel	2LECR1	TESTED	
	LOCATION: MED SURG HALL	TESTED	
Branch Panel	2LECR2A	TESTED	
Branch Panel	2LN1 Sec A	TESTED	

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Equipment Type	Location / Name	Test Statu	Problem #
Branch Panel	2LN1 Sec B	TESTED	
Branch Panel	2LN2A	TESTED	
Branch Panel	2LN2B	TESTED	
Branch Panel	2LECR2	TESTED	
	LOCATION: MAINT CLOSET	TESTED	
Branch Panel	2LELS1	TESTED	
	LOCATION: LAB PENTHOUSE	TESTED	
Starter Disconnect	MRI Exhaust	TESTED	
Starter Disconnect	HCP 71 04	TESTED	
Branch Panel	PHEQBP1	TESTED	
Control Panel	VFD1	TESTED	
Control Panel	VFD2	TESTED	
Disconnect	CF 71 04	TESTED	
Control Panel	CCP 71 04	NTNA	
Starter Disconnect	EF 71 07	TESTED	
	LOCATION: ER PENTHOUSE	TESTED	
Branch Panel	EDPHEQ1	TESTED	
Branch Panel	EDPLEQ1	TESTED	
Distribution Panel	EDPHN1	TESTED	
Distribution Panel	EF2	TESTED	
Distribution Panel	EF3	TESTED	
Starter Disconnect	CWP1	TESTED	
Starter Disconnect	CWP2	TESTED	
	LOCATION: OUTSIDE	TESTED	
	LOCATION: ER PENTHOUSE	TESTED	
Control Panel	Chiller	TESTED	
Disconnect	480v Disc	TESTED	
Disconnect	Leibert 1	TESTED	
Disconnect	Leibert 2	TESTED	
Disconnect	Leibert 3	TESTED	
Disconnect	Cooling Tower 1	TESTED	

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Equipment Type	Location / Name	Test Statu	Problem #
Disconnect	Cooling Tower 2	TESTED	
	LOCATION: 32 BUILDING	TESTED	
	LOCATION: BASEMENT	TESTED	
	LOCATION: ELECTRIC ROOM	TESTED	
Distribution Panel	BLEQDP2	TESTED	
ATS	EQ	TESTED	
Distribution Panel	BLEDP1	TESTED	
ATS	ATSCR	TESTED	
Distribution Panel	BLCRDP2	TESTED	
ATS	ATSLS	TESTED	
Branch Panel	BLLS1	TESTED	
Branch Panel	PNL3	TESTED	
Branch Panel	BLNDP1	TESTED	
Distribution Panel	S1	TESTED	E3
Branch Panel	BLEQ1	TESTED	
Branch Panel	BLLS2	TESTED	
Branch Panel	BLNDP2	TESTED	
Branch Panel	#56	TESTED	
Branch Panel	#53-1	TESTED	
	LOCATION: BOILER ROOM	TESTED	
Disconnect	24-1	NTNL	
Disconnect	24-2	NTNL	
Disconnect	19-1	NTNL	
Disconnect	19-2	TESTED	
Control Panel	Boiler #18	TESTED	
Control Panel	Boiler #25	TESTED	
Disconnect	Boiler #25	TESTED	
Disconnect	Make Up	TESTED	
Disconnect	35-1	TESTED	
Starter Disconnect	35-1	TESTED	
	LOCATION: GENERATOR ROOM	TESTED	

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Equipment Type	Location / Name	Test Statu	Problem #
Branch Panel	BLEQDP2-1	TESTED	
Disconnect	EMP	TESTED	
	LOCATION: CAFÉ ENTERENCE HALL	TESTED	
Distribution Panel	6A EK1	TESTED	
Branch Panel	6B EK2	TESTED	
Branch Panel	6C EK3	TESTED	
	LOCATION: LAUNDRY	TESTED	
Disconnect	28-1	NTNA	
Disconnect	28-2	NTNL	
Disconnect	Soap Dispenser	NTNA	
	LOCATION: ELEVATOR ROOM	TESTED	
Disconnect	#41582	TESTED	
	LOCATION: GROUND FLOOR	TESTED	
	LOCATION: STOREROOM AREA	TESTED	
Branch Panel	Unnamed Cleveland	TESTED	
Branch Panel	EK1-10	TESTED	
	LOCATION: PANTRY	TESTED	
Branch Panel	BLEND P2-20	TESTED	
	LOCATION: KITCHEN	TESTED	
Branch Panel	BLEQ2	TESTED	
Branch Panel	BLN3	TESTED	
Branch Panel	BLN4	TESTED	
	LOCATION: HOUSEKEEPING STORAGE	TESTED	
Branch Panel	EW	TESTED	
	LOCATION: 1ST FLOOR	TESTED	
	LOCATION: UNNAMED OFFICE	TESTED	
Branch Panel	Unnamed	TESTED	
	LOCATION: HALL	TESTED	
Branch Panel	ET	TESTED	
Branch Panel	G	TESTED	
	LOCATION: ELEVATOR ROOM	TESTED	

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Equipment Type	Location / Name	Test Statu	Problem #
Disconnect	BLEQDP2	TESTED	
Disconnect	Car Lights	TESTED	
	LOCATION: LACTATION AREA	TESTED	
Branch Panel	ES	TESTED	
	LOCATION: CHAPEL AREA CLOSET	TESTED	
Branch Panel	N	TESTED	
	LOCATION:CHILLER ROOM	TESTED	
Starter Disconnect	Exhaust	TESTED	
Branch Panel	PLNDP1	TESTED	
Control Panel	AX 43	TESTED	
Disconnect	AHU 32	TESTED	
VFD	AHU 32	TESTED	
Distribution Panel	PLNDP1	TESTED	
	LOCATION: OUTSIDE CAFÉ CHILLER	TESTED	
Disconnect	4th Floor AC Unit	TESTED	E4, E5
	LOCATION: 2ND FLOOR	TESTED	
	LOCATION: HALL	TESTED	
Branch Panel	Pnl 40	TESTED	
	LOCATION: PHYSICAL THERAPY	TESTED	
Branch Panel	Pnl 55	TESTED	
	LOCATION: ADMINISTRATION	TESTED	
Branch Panel	#2	TESTED	
Branch Panel	#1 75	TESTED	
	LOCATION: 3RD FLOOR	TESTED	
	LOCATION: HALL	TESTED	
Branch Panel	3LN1	TESTED	
	LOCATION: NUTRITION CENTER AREA	TESTED	
Branch Panel	Pnl 5	TESTED	
	LOCATION: SLEEP LAB	TESTED	
Branch Panel	BLLS 3	TESTED	V1
	LOCATION: DOCTOR BATHROOM	TESTED	

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Equipment Type	Location / Name	Test Statu	Problem #
Branch Panel	#34	TESTED	
	LOCATION: 4TH FLOOR	TESTED	
	LOCATION: MAINT ROOM	TESTED	
Branch Panel	PNL G	TESTED	
Branch Panel	LP1	TESTED	
	LOCATION: AHU ROOM	TESTED	
Branch Panel	Pnl #7	TESTED	
Transformer	30 KVA	TESTED	
Starter Disconnect	Unnamed	NTNA	
Starter Disconnect	Unnamed	TESTED	
	LOCATION: EX FAN ROOM	TESTED	
Disconnect	Laundry Rm	TESTED	
Disconnect	#5-5	TESTED	
	LOCATION: OUTSIDE	TESTED	
Disconnect	#3202	TESTED	
	LOCATION: HANSON CENTER	TESTED	
	LOCATION: BASEMENT	TESTED	
	LOCATION: MAIN ELECTRIC ROOM	TESTED	
Switchgear	MHNSB1 (3 Sec)	TESTED	
Branch Panel	BLN1	TESTED	
Distribution Panel	BLNDP1	TESTED	
Transformer	BTN1	TESTED	
Distribution Panel	BHNDP1	TESTED	
Branch Panel	BHN1	TESTED	
	LOCATION: TRANSFER SWITCH ROOM	TESTED	
Branch Panel	BLEQ1	TESTED	
Transformer	BTEQ1	TESTED	
Branch Panel	BLCR1	TESTED	
Transformer	BTCR1	TESTED	
Branch Panel	BLLS1	TESTED	
Transformer	BTLLS1	TESTED	

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Equipment Type	Location / Name	Test Statu	Problem #
Branch Panel	BHLS1	TESTED	
Transfer Switch	ATSLS	TESTED	
Branch Panel	BHCR1	TESTED	
Distribution Panel	BHEDP1	TESTED	
Distribution Panel	BHCRDP1	TESTED	
Transformer	ATS EQ	TESTED	
Distribution Panel	BHEQDP1	TESTED	
	LOCATION: 1ST FLOOR	TESTED	
	LOCATION: TELEPHONE ROOM	TESTED	
Branch Panel	1LUPS1	TESTED	
	LOCATION: ELECTRIC CLOSET	TESTED	
Branch Panel	1LN2	TESTED	
Branch Panel	1LN1	TESTED	E8
Branch Panel	1LCR1	TESTED	
Branch Panel	1HN1	TESTED	
Branch Panel	1HCR1	TESTED	
Branch Panel	1HLS1	TESTED	
	LOCATION: ELECTRIC ROOM BY ENTERANCE	TESTED	
Branch Panel	1LN3	TESTED	
Branch Panel	1LN4	TESTED	
Branch Panel	1LLS1	TESTED	
Branch Panel	1LCR2	TESTED	
	LOCATION: 2ND FLOOR	TESTED	
	LOCATION: ELECTRIC ROOM	TESTED	
Branch Panel	2LN3	TESTED	
Branch Panel	2LN4	TESTED	
Branch Panel	2LCR2	TESTED	
Branch Panel	2HCR1	TESTED	
	LOCATION: 3RD FLOOR	TESTED	
	LOCATION: PENTHOUSE	TESTED	
Distribution Panel	PHNDP1	TESTED	

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**Equipment Test Status Key**

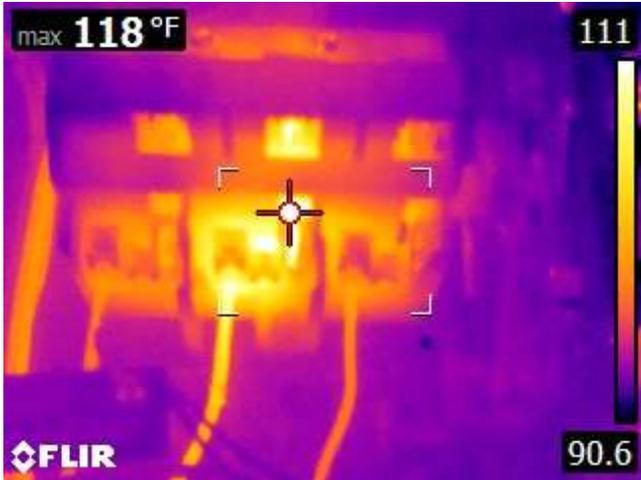
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Equipment Type	Location / Name	Test Statu	Problem #
Branch Panel	PHN1	TESTED	
Branch Panel	PHEQ1	TESTED	
Branch Panel	PLN1	TESTED	
Branch Panel	PLEQ1	TESTED	
Starter Disconnect	MS-EF1	TESTED	
Starter Disconnect	MS-EF2	TESTED	
	LOCATION: OUTSIDE CHILLER	TESTED	
Control Panel	Chiller	TESTED	E6, E7

## Infrared Inspection Report

**Equipment Type: Disconnect**

**LOCATION: 71 BUILDING  
LOCATION: BASEMENT  
LOCATION: BOILER ROOM**



**Thermal Analysis:**

Target Point	Reference Point	Temperature Difference	Severity: 3-Important
(B) Phase: 118 F	(C) Phase: 101 F	17 F	

**Load Test Results:**

<b>(B) Phase:</b>	3.5	<b>Amps</b>	<b>Rated Load:</b>
<b>(C) Phase:</b>	3.5	<b>Amps</b>	<b>% Rated Load:</b>
<b>(A) Phase:</b>	14	<b>Amps</b>	

**Comment:**

Target is the (B) phase knife switch on non-fused disconnect

**Recommendation:**

Shut off power to assembly and inspect knife switch for proper blade tension and alignment. Clean blades thoroughly. Repair or replace parts as necessary.

**Problem Severity Definitions:**

- Critical** - Danger to life and limb, eminent danger to equipment.
- Serious** - Equipment failure is inevitable without immediate attention. Repair should be expedited ASAP
- Intermediate** - If this is not redundant equipment, repair should be scheduled ASAP.
- Minor** - Problem is apparent and needs to be monitored on a regular basis.

**Corrective Action Log**

Date:	Person:
Repair Description:	

## Infrared Inspection Report

**Equipment Type: VFD**

**LOCATION: 71 BUILDING  
LOCATION: BASEMENT  
LOCATION: NEW ELECTRIC ROOM**



**Thermal Analysis:**

Target Point	Reference Point	Temperature Difference	Severity: 3-Important
(B) Phase: 143 F	(C) Phase: 126 F	17 F	

**Load Test Results:**

<b>(B) Phase:</b>	70	<b>Amps</b>	<b>Rated Load:</b>
<b>(C) Phase:</b>	70	<b>Amps</b>	<b>% Rated Load:</b>
<b>(A) Phase:</b>	68	<b>Amps</b>	

**Comment:**

Target is the (B) phase, load side connection. Excessive heat on left side contactor

**Recommendation:**

Deenergize and clean, inspect, and torque to specs the target connection

**Problem Severity Definitions:**

- Critical - Danger to life and limb, eminent danger to equipment.
- Serious - Equipment failure is inevitable without immediate attention. Repair should be expedited ASAP
- Intermediate - If this is not redundant equipment, repair should be scheduled ASAP.
- Minor - Problem is apparent and needs to be monitored on a regular basis.

**Corrective Action Log**

Date:	Person:
Repair Description:	

## Infrared Inspection Report

**Equipment Type:** Distribution Panel

**LOCATION:** 32 BUILDING  
**LOCATION:** BASEMENT  
**LOCATION:** ELECTRIC ROOM



**Thermal Analysis:**

Target Point	Reference Point	Temperature Difference	Severity: 3-Important
(A) Phase: 148 F	(C) Phase: 112 F	36 F	

**Load Test Results:**

(A) Phase:	Amps	Rated Load:
(C) Phase:	Amps	% Rated Load:
(B) Phase:	Amps	

**Comment:**

Target is the (A) phase fuse assembly in main switchgear

**Recommendation:**

Further investigation is required to determine the correct repair procedure.

**Problem Severity Definitions:**

- Critical - Danger to life and limb, eminent danger to equipment.
- Serious - Equipment failure is inevitable without immediate attention. Repair should be expedited ASAP
- Intermediate - If this is not redundant equipment, repair should be scheduled ASAP.
- Minor - Problem is apparent and needs to be monitored on a regular basis.

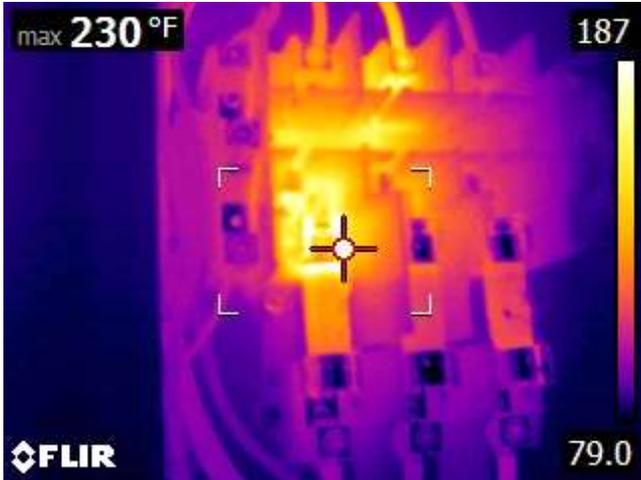
**Corrective Action Log**

Date:	Person:
Repair Description:	

## Infrared Inspection Report

**Equipment Type:** Disconnect

**LOCATION:** 32 BUILDING  
**LOCATION:** 1ST FLOOR  
**LOCATION:** OUTSIDE CAFÉ CHILLER



**Thermal Analysis:**

Target Point	Reference Point	Temperature Difference	Severity: 1-Critical
(A) Phase: 230 F	(C) Phase: 112 F	118 F	

**Load Test Results:**

(A) Phase:	Amps	Rated Load:
(C) Phase:	Amps	% Rated Load:
	Amps	

**Comment:**

Target is the (A) phase, line side, fuse clip on disconnect.  
Note: This is a critical defect. Staff was notified on-site

**Recommendation:**

Due to intense heat located at target area, un-repairable damage has likely occurred to equipment components. Recommend replacing all components associated with this defect. After fix, check with spot gun to insure a successful repair.

**Problem Severity Definitions:**

- Critical** - Danger to life and limb, eminent danger to equipment.
- Serious** - Equipment failure is inevitable without immediate attention. Repair should be expedited ASAP
- Intermediate** - If this is not redundant equipment, repair should be scheduled ASAP.
- Minor** - Problem is apparent and needs to be monitored on a regular basis.

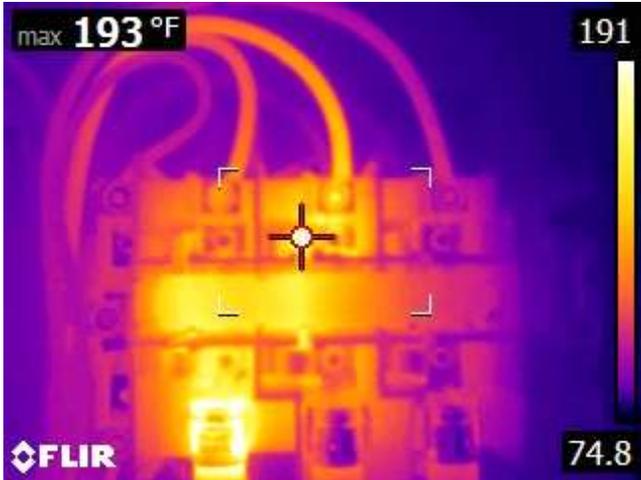
**Corrective Action Log**

Date:	Person:
Repair Description:	

## Infrared Inspection Report

**Equipment Type:** Disconnect

**LOCATION:** 32 BUILDING  
**LOCATION:** 1ST FLOOR  
**LOCATION:** OUTSIDE CAFÉ CHILLER



**Thermal Analysis:**

Target Point	Reference Point	Temperature Difference	Severity: 1-Critical
(B) Phase: 193 F	(C) Phase: 105 F	88 F	

**Load Test Results:**

(B) Phase:	Amps	Rated Load:
(C) Phase:	Amps	% Rated Load:
	Amps	

**Comment:**

Target is the (B) phase knife switch on disconnect. Note: This is a critical defect. Staff was notified on-site

**Recommendation:**

Intense heat has likely caused damage to target. Recommend replacement of kniveswitch

**Problem Severity Definitions:**

- Critical - Danger to life and limb, eminent danger to equipment.
- Serious - Equipment failure is inevitable without immediate attention. Repair should be expedited ASAP
- Intermediate - If this is not redundant equipment, repair should be scheduled ASAP.
- Minor - Problem is apparent and needs to be monitored on a regular basis.

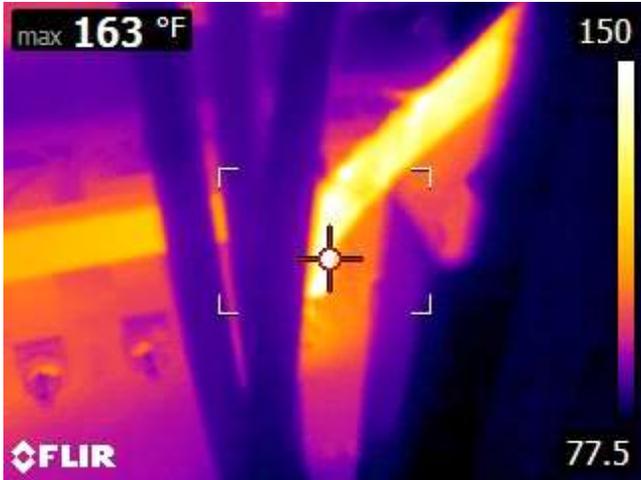
**Corrective Action Log**

Date:	Person:
Repair Description:	

## Infrared Inspection Report

**Equipment Type: Control Panel**

**LOCATION: HANSON CENTER  
LOCATION: OUTSIDE CHILLER  
Chiller**



**Thermal Analysis:**

Target Point	Reference Point	Temperature Difference	Severity: 1-Critical
(A) Phase: 163 F	(C) Phase: 102 F	61 F	

**Load Test Results:**

(A) Phase:	Amps	Rated Load:
(C) Phase:	Amps	% Rated Load:
	Amps	

**Comment:**

Target is the (A) phase, load side contactor labeled "1M."  
NOTE: This is a critical defect. Staff was notified about issue while on site

**Recommendation:**

Further investigation is required to determine the correct repair procedure.

**Problem Severity Definitions:**

- Critical - Danger to life and limb, eminent danger to equipment.
- Serious - Equipment failure is inevitable without immediate attention. Repair should be expedited ASAP
- Intermediate - If this is not redundant equipment, repair should be scheduled ASAP.
- Minor - Problem is apparent and needs to be monitored on a regular basis.

**Corrective Action Log**

Date:	Person:
Repair Description:	

## Infrared Inspection Report

**Equipment Type: Control Panel**

**LOCATION: HANSON CENTER  
LOCATION: OUTSIDE CHILLER  
Chiller**



**Thermal Analysis:**

Target Point	Reference Point	Temperature Difference	Severity: 3-Important
(C) Phase: 94 F	(A) Phase: 82 F	12 F	

**Load Test Results:**

(C) Phase:	Amps	Rated Load: 63
(A) Phase:	Amps	% Rated Load:
	Amps	

**Comment:**

Target is the (C) phase, line side, connection defect on 63 amp breaker. Amperage reading was not obtained during time of inspection

**Recommendation:**

Deenergize and clean, inspect, and torque to specs the target connections

**Problem Severity Definitions:**

- Critical - Danger to life and limb, eminent danger to equipment.
- Serious - Equipment failure is inevitable without immediate attention. Repair should be expedited ASAP
- Intermediate - If this is not redundant equipment, repair should be scheduled ASAP.
- Minor - Problem is apparent and needs to be monitored on a regular basis.

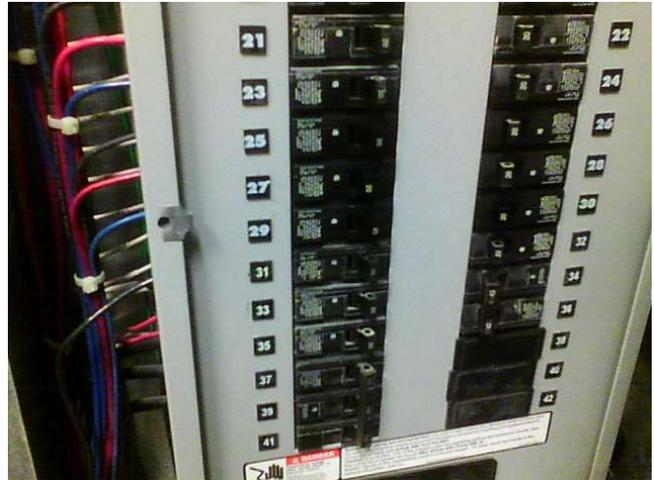
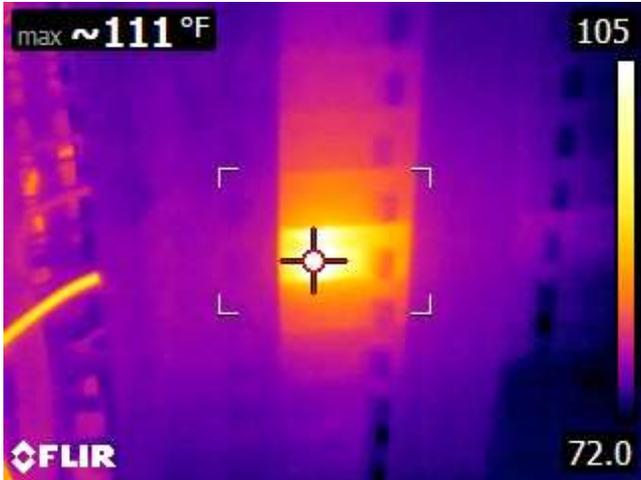
**Corrective Action Log**

Date:	Person:
Repair Description:	

## Infrared Inspection Report

**Equipment Type: Branch Panel**

**LOCATION: HANSON CENTER  
LOCATION: 1ST FLOOR  
LOCATION: ELECTRIC CLOSET**



**Thermal Analysis:**

Target Point	Reference Point	Temperature Difference	Severity: 3-Important
Breaker #31: 111 F	Breaker #36: 73 F	38 F	

**Load Test Results:**

<b>Breaker #31:</b>	<b>Amps</b>	<b>Rated Load:</b> 30
<b>Breaker #36:</b>	<b>Amps</b>	<b>% Rated Load:</b>
	<b>Amps</b>	

**Comment:**

Target is breaker #31, possible overload on 30 amp breaker. Feeds "Neon Sign"

**Recommendation:**

Further investigation is required to determine the correct repair procedure.

**Problem Severity Definitions:**

- Critical - Danger to life and limb, eminent danger to equipment.
- Serious - Equipment failure is inevitable without immediate attention. Repair should be expedited ASAP
- Intermediate - If this is not redundant equipment, repair should be scheduled ASAP.
- Minor - Problem is apparent and needs to be monitored on a regular basis.

**Corrective Action Log**

Date:	Person:
Repair Description:	

INFRARED THERMOGRAPHIC INSPECTION  
OF  
VISUAL PROBLEMS

Provided for

Report Date: 10/26/2017

**Overview:**

The Infrared Electrical Inspection was performed by Dyna Scan Technical Services, by a certified infrared Thermographer. All of the items inspected are listed in this InspecTrend report. Any anomalies are listed in order of priority based on the component's temperature rise, as measured from a reference component of equal type and load at the time of the inspection. Dyna Scan Technical Services assumes no liability directly or indirectly as a result of this inspection.

**Current Inspection No: 4213 October 9, 2017**

Prior Inspection No:

Priority	Temp Rise	Current Inspection	Prior Inspection	Percent of Change
1-Critical		0 = 0%	NA	NA
2-Serious		0 = 0%	NA	NA
3-Important		1 =100%	NA	NA
4-Minor		0 = 0%	NA	NA
Total Tested Problems:		<b>1</b>	NA	NA
Number of New Documented Problems:		1 =100%	NA	NA
Number of Tested re-occurring Problems:		0 = 0%	NA	NA

Number of prior problems which were Not Tested this inspection : NA

Number of Total Open Problems : **1**

Number of prior problems which tested Normal this inspection : NA

I hereby certify the above project was inspected by myself or under my direction and that the enclosed data is the direct result of this inspection.

**Dyna Scan Technical Services**

O'Brien, TJ

Certification Level/No.: Certified Thermographer

\* Summary of reoccurring problems on following page(s)

# Visual Problem Documentation

Work Order#:

Location/Equipment Information
Asset ID: Branch Panel
Barcode:
LOCATION: 32 BUILDING
LOCATION: 3RD FLOOR
LOCATION: SLEEP LAB
BLLS 3

Current Prob No: Visual/1	
Is Chronic:	No
Operation Priority:	Critical to operation
Repair Priority:	3-Important

Report Date: 10/26/2017

**Hazard Type:** Missing Blanks

**Hazard Classification:** Missing Blanks

**Hazard Group:** Missing Blank

**Hazard Issue:** Enclosure not sealed properly, this voids the UL listing.

**Observations:** A number of branch panels were observed missing breaker slots. These enclosures not sealed properly, and thus voids the UL listing. This is also an NEC violation. Other panels include, but not limited to: Pnl #40 (outside chiller area), Pnl #34 (Doctor bathroom)

**Consequences of Hazard:** Unwanted entry of foreign objects into panel; Injury or death caused by contact to energized components

**What is the Cause:** Missing Breaker Slot Covers

**Recommendations:** Repair as per the National Electric Code



File: FLIR8855.jpg Date: 10/10/2017 Time: 10:10 AM  
File: FLIR8855.jpg Date: 10/10/2017 Time: 10:10 AM

Technician: O'Brien, TJ  
Certification Level/No.: Certified Thermographer