

# **ELECTRICAL/MECHANICAL INFRARED INSPECTION REPORT**

for

The Corporate Facility  
2001 Freedom Way  
United City, USA

January 01, 2012

Job Number: 1111-12

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Discusses Section V (Thermographic Documentation & Analysis) and Section VI (Equipment Repair Summary Page) and explains the Repair Priority Guide

### **V - Thermographic Documentation & Analysis**

Contains a full page of documentation for each problem found, including photo and color or B&W thermogram.

### **VI - Equipment Repair Summary Form**

Includes a form (Equipment Repair Summary Page) to document equipment repair information including the date of repair, the responsible person, and the action(s) taken to resolve the problem.

## ***I – INTRODUCTION***

Infrared Inspections, Inc., recently performed an infrared inspection of your electrical and mechanical equipment (Section III contains a complete list of all equipment inspected). The purpose of this report is to present the results of that inspection, especially for any potential problems indicated by the presence of excessive heat.

The infrared device used to perform the inspection is a sophisticated electronic camera that “sees” the heat emitted from your equipment. The pictures produced by this camera are called thermograms, and they are essentially multi-colored “temperature maps” of your equipment in which each color indicates a different temperature.

The infrared thermographer who performed your inspection used this special camera to look for potential problem points in your equipment which could cause premature deterioration and costly down time. With our advance warning, you can proactively service this equipment before it causes costly problems. Section IV contains a detailed explanation of the thermographic analysis description to help prioritize repair scheduling for problems identified during the infrared inspection procedure.

The results of the inspection are presented in Sections III, V and VI of the report. Section III contains a complete list of all equipment inspected, with summary results detailing the equipment inspection status. Section V contains a full page of documentation for each problem found, including photographs, thermographs, apparent temperature measurements, thermographic analysis and recommended actions. Section VI presents an Equipment Repair Summary Form to be completed by the customer.

This inspection and report have been performed and prepared under the direction of an Infrared Inspections thermographer who is certified by the Infrasppection Institute. This report fully meets the Infrasppection Institute’s “Guidelines for Infrared Inspection of Electrical and Mechanical Systems.”

## **II – CERTIFICATION**

I hereby warrant that the inspection, which is the subject of this report, was conducted personally by me or by a thoroughly qualified assistant under my direction. I further warrant that this report has been prepared under my personal guidance and has been found by me to be totally accurate and complete to the best of my ability as a certified thermographer.

*James E. Berg*

***Certified Thermographer, Level I and II  
Infraspection Institute Certificate No. 3788***



### **III - INSPECTION EQUIPMENT LIST**

**Location:** The Corporate Facility, 2001 Freedom Way, United City, USA

**Date(s):** January 01, 2012

**Job:** 1111-12

LOCATION	EQUIPMENT	PHOTO	DETAILS
Penthouse, motor control center room.	Motor control center #13, main incoming connections.		Y
	Motor control center #13, starter for supply fan SF-9		Y
	Motor control center #13, starter for exhaust fan EX-10		Y
	Motor control center #13, starter for supply fan SF-11		Y
	Motor control center #13, starter for exhaust fan EX-8		Y
	Motor control center #13, starter for pump P-65		Y
	Motor control center #13, starter for pump P-67		Y
	Motor control center #13, starter for main exhaust fan		Y
	Motor control center #13, fused disconnect for room heater		Y
	Breaker panel LP-12		Y
	Transformer T-12		Y
Penthouse, mechanical area.	Motor & pump bearings for pump P-65		Y
	Motor & pump bearings for pump P-67		Y
	Motor & fan bearings for exhaust fan EX-8		Y
	Motor & fan bearings for exhaust fan EX-10		Y
	Motor & fan bearings for supply fan SF-9		Y
	Motor & fan bearings for supply fan SF-11		Y
	Motor & fan bearings for main exhaust fan		Y
Penthouse, outside roof area	Disconnect for cooling tower fan motors		Y
	Motor and fan bearings for exhaust fan		Y
6 <sup>th</sup> floor electrical closet	Breaker panel LP-6		Y
	Breaker panel RP-6		Y
	Transformer T-6		Y
	Fused disconnect for T-6		Y
	Fused disconnect for LP-6		Y
	Fused disconnect for RP-6		Y
	Fused panel EM-6 for emergency lighting		Y
5 <sup>th</sup> floor electrical closet	Breaker panel LP-5		Y
	Breaker panel RP-5		Y

**PHOTO COLUMN:** **A RED #** represents a thermographic anomaly analysis photo page and **A BLUE #** represents a thermographic sample analysis photo page, both will be included in SECTION V of this report.

**DETAILS COLUMN:** Y=panels/doors off or open, N=panels/doors on or closed, NI = not inspected, OFF=equipment was not in operation, UI=ultrasonically inspected

### **III - INSPECTION EQUIPMENT LIST**

**Location:** The Corporate Facility, 2001 Freedom Way, United City, USA

**Date(s):** January 01, 2012

**Job:** 1111-12

LOCATION	EQUIPMENT	PHOTO	DETAILS
5 <sup>th</sup> floor electrical closet	Fused disconnect for LP-5		Y
	Fused disconnect for RP-5		Y
	Fused panel EM-5 for emergency lighting		Y
4 <sup>th</sup> floor electrical closet	Breaker panel LP-4		Y
	Breaker panel RP-4		Y
	Transformer T-4	<b>05</b>	Y
	Fused disconnect for transformer T-4		Y
	Fused disconnect for LP-4		Y
	Fused disconnect for RP-4		Y
3 <sup>rd</sup> floor electrical closet	Fused panel EM-4 for emergency lighting		Y
	Breaker panel LP-3		Y
	Breaker panel RP-3		Y
	Fused disconnect for LP-3		Y
	Fused disconnect for RP-3		Y
2 <sup>nd</sup> floor electrical closet	Fused panel EM-3 for emergency lighting		Y
	Breaker panel LP-2		Y
	Breaker panel RP-2		Y
	Transformer T-2		Y
	Fused disconnect for transformer T-2		Y
	Fused disconnect for LP-2		Y
	Fused disconnect for RP-2		Y
Computer room, main area	Fused panel EM-2 for emergency lighting		Y
	Control panel for Liebert A/C #1 unit		Y
	Breaker disconnect for Liebert A/C #1 unit		Y
	Power distribution unit PDU #2		Y
Computer room, south electrical closet	Power distribution unit PDU #3		Y
	Breaker distribution panel LP-C	<b>07</b> <b>07R</b>	Y
	Breaker panel RP-C		Y
	Main 225 KVA transformer		Y
	Fused disconnect for 225 KVA transformer		Y
	Fused disconnect for LP-1C		Y
	Fused disconnect for RP-1C		Y
	Starter for exhaust fan EF-C1		Y
	Starter for supply fan SF-C1		Y
	Fused panel for emergency lighting		Y
	Fused disconnect for emergency lighting		Y

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LOCATION	EQUIPMENT	PHOTO	DETAILS
1 <sup>st</sup> floor main electrical room	Breaker panel RP-1		Y
	Breaker panel LP-1		Y
	Breaker panel BP-25	<b>03</b>	Y
	Transformer T-1		Y
	Fused disconnect for T-1		Y
	Fused disconnect for BP-25		Y
	Fused disconnect for LP-1		Y
	Fused disconnect for RP-1		Y
	Fused panel EM-1 for emergency lighting		Y
	Main equipment room	Switchboard #5, fused disconnect for panels LP 6-1	
Switchboard #5, fused disconnect for panels RP 6-1			Y
Switchboard #5, fused disconnect for panels emergency lighting panels EM 6-1			Y
Switchboard #5, fused disconnect for panels transformers T 6-1			Y
Switchboard #5, fused disconnect for chiller #1			Y
Switchboard #5, main fused disconnect for switchboard			Y
Bus riser		<b>04</b>	Y
Automatic transfer switch ATS #1 (under normal power mode)			Y
Starter control panel for domestic water pumps			Y
Motor and pump bearings for domestic water pumps			Y
Starter control cabinet for RM #1		<b>06</b>	Y
Control panel for domestic hot water tank			Y
Fused disconnect for domestic hot water tank			Y
UPS equipment for computer systems			Y
Breaker distribution for unit heaters 1-6		Y	
Fire pump room	Starter control cabinet for fire pump	<b>01</b>	Y
	Motor and pump bearings for fire pump	<b>02</b>	Y

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## **IV - EXPLANATION OF PROBLEM DOCUMENTATION**

Maintenance personnel need to prioritize their repair efforts. To help them do this, we provide you with a repair priority rating for each problem point identified in this report. The repair priority rating is an objective measure which is based on the severity of the apparent temperature rise measured by the thermographer (see table below). These ratings adhere to established industry standards and guidelines. To determine repair schedules, the ratings should be combined with the judgement of your maintenance personnel as to the importance of each potential problem with regard to personnel safety and the consequences of equipment failure.

<b>REPAIR PRIORITY RATING SERVICE GUIDE</b>			
<b>RATING</b>	<b>APPARENT TEMPERATURE RISE</b>		<b>RECOMMENDATION</b>
<b>Serious</b>	<b>1 - 35° C</b>	<b>1- 63° F</b>	<b>Repair as soon as schedule allows</b>
<b>Severe</b>	<b>36 - 50° C</b>	<b>64 - 90° F</b>	<b>Repair as soon as possible</b>
<b>Critical</b>	<b>&gt; 50° C</b>	<b>&gt; 90° F</b>	<b>REPAIR IMMEDIATELY</b>

Sections V of this report contains complete and comprehensive documentation of the potential problem(s) identified during the thermographic inspection of designated equipment. It contains a full page of documentation for each problem, including equipment location and description, equipment photograph, thermal image, apparent temperature measurements, thermographic analysis of probable causes and recommendations for corrective action.

Section VI is an Equipment Repair Summary Form that may be used by the customer's engineering department to document important repair information.



January 05, 2012

## SAMPLE REPORT

Mr./Ms. Customer  
The Corporate Facility  
2001 Freedom Way  
United City, USA

Dear Mr./Ms. Customer

Thank you for selecting **INFRARED INSPECTIONS, INC.** to perform the thermal electrical/mechanical inspection at The Corporate Facility, United City, USA. The full report detailing the results of that inspection is enclosed.

If there are any questions regarding the report, or if there is anything else we can do to be of service to you, please call us at 708-865-7700.

We wish to thank you and your staff for the cooperation and assistance provided to us during the inspection. Your business is very important to us, and we look forward to serving you again in the future.

Sincerely,

A handwritten signature in red ink that reads "James E. Berg". The signature is written in a cursive style with a large, sweeping initial "J".

James Berg  
President and Certified Thermographer Level 1 & 2