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Sample Client

Thermal Image Report

Prepared for:

Sample Client

Address

Address

Address

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INTRODUCTION

A summary of all the switchboards and/or plant equipment scanned during this inspection is detailed in this report.

REQUIRMENTS DURING TESTING

In order to perform the thermal inspection properly it is required that any panel doors and escutcheon panel's plastic or glass be removed during testing. This is necessary because infrared radiation testing does not pass through the above objects.

Covers have only been removed if safety and integrity of the plants operation is not compromised. Any plant not operating at the time of the Thermal Inspection will be inspected as part of the whole plant but no thermal observations will be made due to non-operation of that plant.

ACTIONS & RISK ANALYSIS

The following report contains a series of thermograms of the switchboards/plant inspected during the Thermal Inspection which may highlight possible faults with equipment categorised as per the repair priority schedule.

Techforce Electrical recommend that you conduct your own Risk Assessment of each observation and report in this document as we only observe & report the seriousness of faults. You will need to determine the possible impact the observed fault may have on the operation of your plant and prepare your own repair schedule based on your assessment.

FOLLOW UP

We recommend regular Thermal inspections at (12) twelve monthly intervals. This may reduce unscheduled downtime and failures. Will also assist with an effective maintenance program.

Summary

Based on these test results there are no immediate actions to be taken.

Switchboard	Recommended Action
Main Switchboard	Nothing to Report Reinspect in 12 Months
Distribution Board 1	Nothing to Report Reinspect in 12 Months
Distribution Board 2	Nothing to Report Reinspect in 12 Months
Distribution Board 3	Nothing to Report Reinspect in 12 Months
Distribution Board 4	Nothing to Report Reinspect in 12 Months

Technical Information

The temperature observations that are detailed in this report can be referenced to the Australian standards "Limiting Temperatures" information, which may assist you in your risk analysis of each observation, further information can be found in the Australian standards AS/NZS 3000, section 3; 3.4.2 and AS/NZS 3008.

In summary, the Australian Standards state that;

1. In all boards the temperature rises shall be related to the ambient temperature. Accessible boards, i.e. touchable, the rise is not to exceed 30°C and non-accessible boards 40°C.
2. The temperature of the various components are related to the adjacent cable insulation maximum temperatures, these ideally should not be exceeded. Maximum temperatures: Thermoplastics V-75 Cables etc. – 75°C; High temp. V-105 – 105°C; Cross linked elastomers e.g. R-EP-90 and XLPE-90 – 90°C; R-HF-110 – 110°C; 150 – 150°C etc.

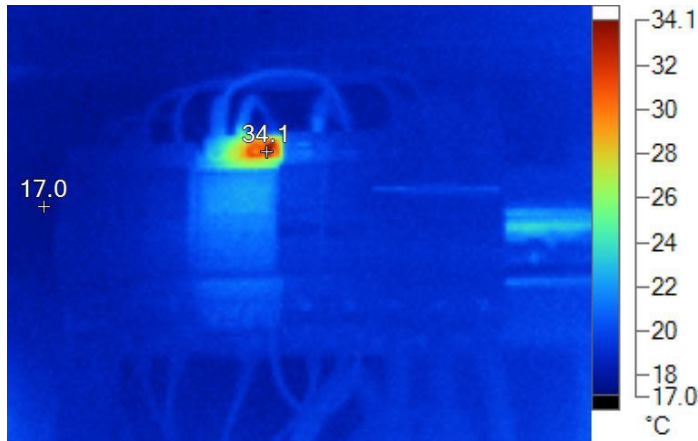
The priorities as specified in the repair priority schedule below are based on the above mentioned standards. The temperature difference as stated below is the difference in temperature between the operating & maximum fault temperature recorded. The above temperature difference can exist in an electrical installation between phases, across switches, contactors and other components. Other factors that can effect a temperature difference are the loading and application of an electrical circuit.

Repair Priority	Average Temp	Fault Temp	Suggested Action
1	>30°C	>100°C	Serious Problem identified, should be corrected as soon as possible, could fail at any time, check adjacent components for damage.
2	20°C - 30°C	100°C - 75°C	Not serious problem should be corrected within weeks it could fail at any time resulting to breakdown, check adjacent components for damage.
3	20°C - 10°C	75°C - 60°C	Minor problem, should be checked and repaired when convenient or during routine maintenance should be reinspected during next inspection to determine trends.
4	<10°C	<60°C	No problem found. Reinspect in 12 months.

The following general assumptions can be made:

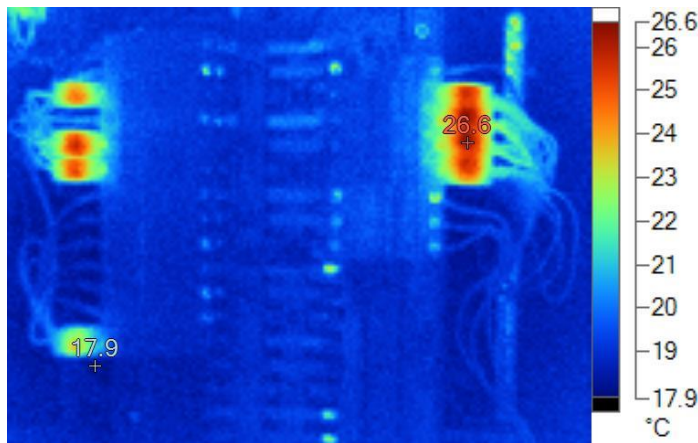
1. Where fuses/circuit breakers are hot at one end it can be assumed that a problem exists with the contacts and/or connections.
2. Where fuses/circuit breakers are hot overall check the fuse size and load should be checked for correct rating.
3. A high temperature on both sides of a component suggests faulty contacts/connections and/or out of balance load. Testing will confirm/eliminate the balance as a problem.
4. Where contactor terminals are hot and the screws are tight, the problem may exist internally with in the contactor.
5. Generally overloads run cooler than the contactor coil. If the overload is hotter the loads and sizing should be checked.

Inspection Date:	6/25/2013 10:17:45 AM	Location	Student Housing
Equipment	Switchboard	Equipment Name:	Main Switchboard
Potential Problem:	Nil	Repair Priority:	4
Emissivity:	0.76	Reflected Temperature:	13.3 °C
Camera Manufacturer	Fluke Thermography	Camera:	09060417
Hot Image Marker:	34.1°C	Cold Image Marker	17.0°C



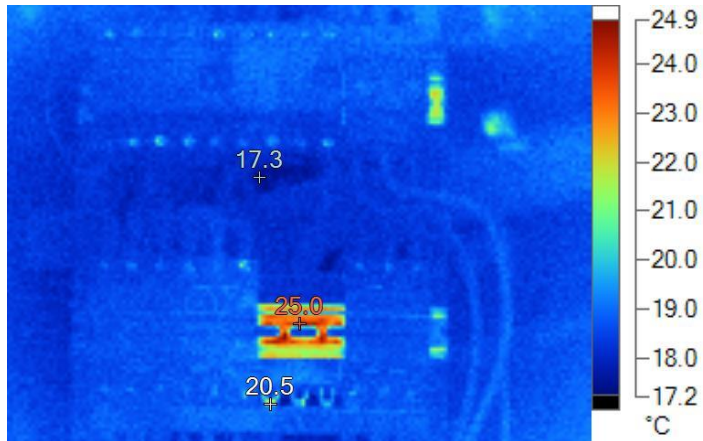
IR001271.IS2

Inspection Date:	6/25/2013 10:20:12 AM	Location	Student Housing
Equipment	Switchboard	Equipment Name:	Main Switchboard
Potential Problem:	Nil	Repair Priority:	4
Emissivity:	0.27	Reflected Temperature:	26.0 °C
Camera Manufacturer	Fluke Thermography	Camera:	09060417
Hot Image Marker:	26.6°C	Cold Image Marker	17.9°C



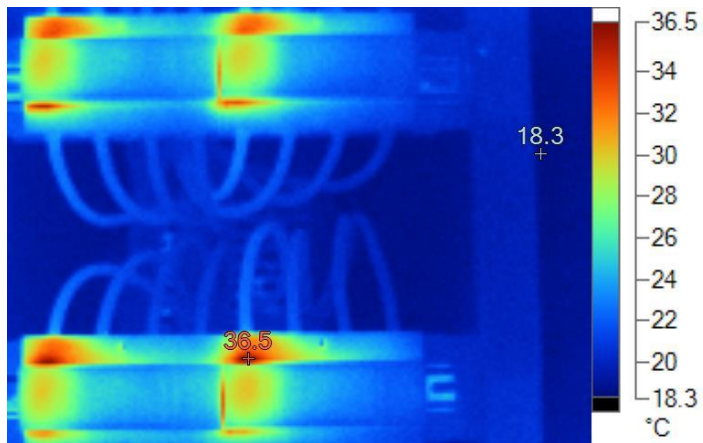
IR001273.IS2

Inspection Date:	6/25/2013 10:23:23 AM	Location	Student Housing
Equipment	Switchboard	Equipment Name:	Main Switchboard
Potential Problem:	Nil	Repair Priority:	4
Emissivity:	0.27	Reflected Temperature:	26.0 °C
Camera Manufacturer	Fluke Thermography	Camera:	09060417
Hot Image Marker:	20.5°C	Cold Image Marker	17.3°C



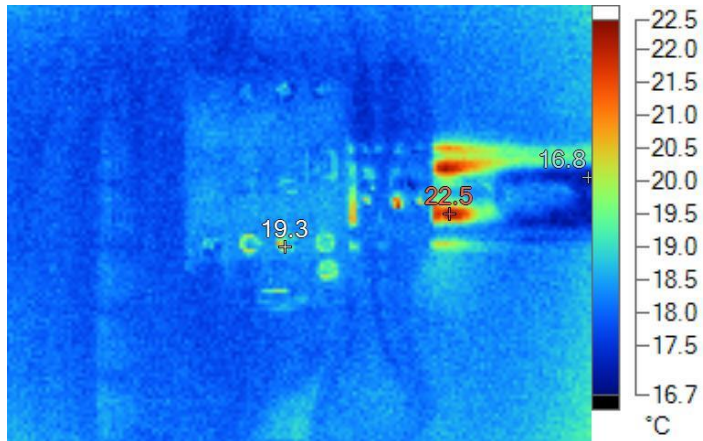
IR001274.IS2

Inspection Date:	6/25/2013 10:31:24 AM	Location	Student Housing
Equipment	Switchboard	Equipment Name:	Main Switchboard
Potential Problem:	Nil	Repair Priority:	4
Emissivity:	0.27	Reflected Temperature:	26.0 °C
Camera Manufacturer	Fluke Thermography	Camera:	09060417
Hot Image Marker:	36.5°C	Cold Image Marker	18.3°C



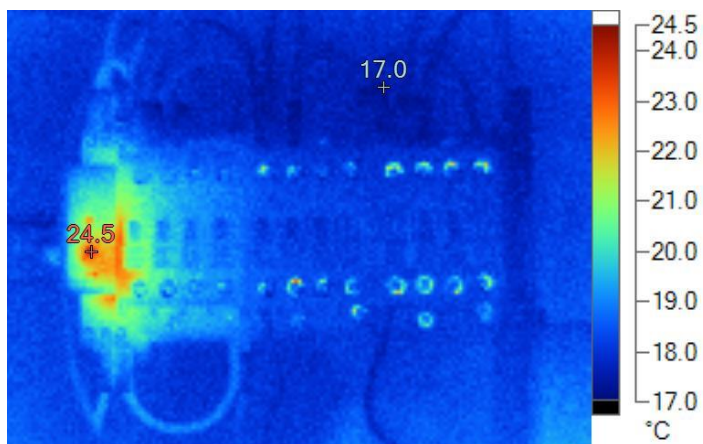
IR001275.IS2

Inspection Date:	6/25/2013 10:39:53 AM	Location	Student Housing
Equipment	Switchboard	Equipment Name:	Distribution Board 1
Potential Problem:	Nil	Repair Priority:	4
Emissivity:	0.27	Reflected Temperature:	26.0 °C
Camera Manufacturer	Fluke Thermography	Camera:	09060417
Hot Image Marker:	19.3°C	Cold Image Marker	16.8°C



IR001277.IS2

Inspection Date:	6/25/2013 10:40:13 AM	Location	Student Housing
Equipment	Switchboard	Equipment Name:	Distribution Board 1
Potential Problem:	Nil	Repair Priority:	4
Emissivity:	0.27	Reflected Temperature:	26.0 °C
Camera Manufacturer	Fluke Thermography	Camera:	09060417
Hot Image Marker:	24.5°C	Cold Image Marker	17.0°C



IR001278.IS2