

CITY OF SACRAMENTO
1231 I Street, Sacramento, CA 95814

Permit No: 0518066
Insp Area: 1
Thos Bros: 297C4

Site Address: 925 L ST SAC
Parcel No: 006-0102-007

Sub-Type: REP
Housing (Y/N): N

CONTRACTOR
BEST INFRARED SVCS. INC.
720 S. ROCHESTER
#A 91761

OWNER
925 L STREET INC
925 L ST
SACRAMENTO, CA 95814

ARCHITECT

Nature of Work: RPLC 4000A MAIN BREAKER (SUITE #260)

CONSTRUCTION LENDING AGENCY : I hereby affirm under penalty of perjury that there is a construction lending agency for the performance of the work for which this permit is issued (Sec. 3097, Civ. C).

Lender's Name _____ Lender's Address _____

LICENSED CONTRACTORS DECLARATION: I hereby affirm under penalty of perjury that I am licensed under provisions of Chapter 9 (commencing with section 7000) of Division 3 of the Business and Professions Code and my license is in full force and effect.

X License Class C-10 License Number 790947 Date 11/14/05 Contractor Signature [Signature]

OWNER-BUILDER DECLARATION: I hereby affirm under penalty of perjury that I am exempt from the contractors License Law for the following reason (Sec. 7031.5, Business and Professions Code; any city or county which requires a permit to construct, alter, improve, demolish, or repair any structure, prior to its issuance, also requires the applicant for such permit to file a signed statement that he or she is licensed pursuant to the provisions of the Contractors License Law (Chapter 9 (commencing with Section 7000) of Division 8 of the Business and Professions Code) or that he or she is exempt therefrom and the basis for the alleged exemption. Any violation of Section 7031.5 by any applicant for a permit subjects the applicant to a civil penalty of not more than five hundred dollars (\$500.00);

I, as a owner of the property, or my employees with wages as their sole compensation, will do the work, and the structure is not intended or offered for sale (Sec. 7044, Business and Professional Code: The Contractors License Law does not apply to an owner of property who builds or improves thereon, and who does such work himself or herself or through his/her own employees, provided that such improvements are not intended or offered for sale. If, however, the building or improvement is sold within one year of completion, the owner-builder will have the burden of proving that he/she did not build or improve for the purpose of sale.)

I, as owner of the property, am exclusively contracting with licensed contractors to construct the project (Sec. 7044, Business and Professions Code: The Contractors License Law does not apply to an owner of property who builds or improves thereon, and who contracts for such projects with a contractor(s) licensed pursuant to the Contractors License Law).

I am exempt under Sec. _____ B & PC for this reason: _____

Date _____ Signature _____

IN ISSUING THIS BUILDING PERMIT, the city relies on the representation of the applicant, that the applicant verified all measurements and locations shown on the application or accompanying drawings and that the improvement to be constructed does not violate any law or private agreement relating to permissible or prohibited locations for such improvements. This building permit does not authorize any illegal location of any improvement or the violation of any private agreement relating to location of improvements.

I certify that I have read this application and state that all information is correct. I agree to comply with all city and county ordinances and state laws relating to building construction and herby authorize representative(s) of this city to enter upon the abovementioned property for inspection purposes.

X Date 11/14/05 Applicant/Agent Signature [Signature]

WORKER'S COMPENSATION DECLARATION: I hereby affirm under penalty of perjury one of the following declarations:

I have and will maintain a certificate of consent to self-insure for workers' compensation as provided for by Section 3700 of the Labor Code, for the performance of work for which the permit is issued.

X I have and will maintain workers' compensation insurance, as required by Section 3700 of the Labor Code, for the performance of the work for which this permit is issued. My workers' compensation insurance carrier and policy number are

Carrier STATE FUND Policy Number 1216226 Exp Date 09/01/2006

(This section need not be completed if the permit is for \$100 or less) I certify that in the performance of the work for which this permit is issued, I shall not employ any person in any manner so as to become subject to the workers' compensation laws of California and agree that if I should become subject to the workers' compensation provisions of Section 3700 of the Labor Code, I shall forthwith comply with those provisions.

X Date 11/14/05 Applicant Signature [Signature]

WARNING: FAILURE TO SECURE WORKER'S COMPENSATION COVERAGE IS UNLAWFUL AND SHALL SUBJECT AN EMPLOYER TO CRIMINAL PENALTIES AND CIVIL FINES UP TO ONE HUNDRED THOUSAND DOLLARS (\$100,000) IN ADDITION TO THE COST OF COMPENSATION, DAMAGES AS PROVIDED FOR IN SECTION 3706 OF THE LABOR CODE, INTEREST AND ATTORNEY'S FEE.

THIS PERMIT SHALL EXPIRE BY LIMITATION IF WORK IS NOT COMMENCED WITHIN 180 DAYS.



INFRARED SERVICES, INC

FAX CORRESPONDENCE

TO: Tom Melavic

FROM: Michael R. Bivens

DATE: December 12, 2005

TIME: 2:20 p.m.

CUSTOMER FAX NUMBER: 916 - 808-5543

OUR FAX NUMBER: 909 - 937-6798

MESSAGE:

Tom: Please find the following GFI information that you requested.
If you have any questions please do not hesitate to call us at the office.

MICROFILM AT FINAL

*THANKS
MIKE
S*

TOTAL NUMBER OF PAGES

2

BEST Infrared Services 1 (800) 597-1225
best-infrared.com



Infrared Services, Inc.

Ground Fault Relay Test Report

Customer	Job Location	Job No.
JONES LANG LASALLE	925 L STREET	F 10608
SWGR Identification	Location	Date
MAIN SERVICE	BASEMENT	12/10/05
	Test Equipment Used	Tech.
	845 MEGGER	MRB

Ground Fault Relay Information

MFG./Type	Cat NO.	Range:
GE / 8440LS16	RMS90019310	Amps 100 - 1200A Sec. INST - .9
Control Voltage	Trans. VA	Monitor Panel
N/A	N/A	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
System Configuration		C. L. Fuses
RESIDUAL		<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No

Breaker Information

Visual Inspection

Ground Fault Relay Settings

MFG./Type	Neutral Ground Location	Current
GE / SHF408440	OK	1200A
Style No. SERIAL	Neutral Link Accessibility	
17504131320/A01	OK FRONT	
Rating:	Sensor Mounting	Time
Amps 4000 Volts 480 VAC	OK	.3 I ² T IN

Electrical Test Data

	As Found	As Left
Relay pick up		1220A
Relay Test @ 200 %		2400A @ .5
Relay Test @ 300 %		3600A @ .39
Relay Test @ %		
Relay trip @ 57% Control Voltage	N/A	
Neutral insulation Resistance	.02 MΩ	
Monitor Panel Operation	OK	
Neutral Sensor Polarity Check	OK	
Remarks		



West Coast Division
Camas Office
2600 N.W. Lake Rd.
Camas, WA 98607-9526
www.ul.com/field
tel: 1 577-UL-HELPS

December 22, 2005

FE2287, 05CA55194

Specialized Electrical Power Panel
5205 State Street
Montclair, CA 91763-6235

Attention: Mr. Paul Volkov

Permit 0518066
925 L St,

Subject: Field Evaluation of Modified 4000A Switchboard

Dear Mr. Volkov:

On December 10, 2005, UL conducted a Field Evaluation on the above subject equipment. It was determined that one or more of the products evaluated did not comply with the applicable requirements and UL's Field Evaluated products Mark(s) were not applied to the product(s).

Please find attached a copy of the Preliminary Findings Report(s). This report should be reviewed to verify that the information provided is complete and correct. The report provides the details of the evaluation up to this time and identifies each of the non-conforming issues along with the required corrective actions.

Based on discussion with you and the inspection authority, since the discrepancies noted in the report are on the existing switchboard, and since the work performed complies with the requirements of UL891, there is no need for a second visit. Hence, we are closing this investigation and providing an invoice for the charges accrued.

If you should have technical questions regarding this report, please contact me as noted below.

Very Truly Yours,

James R. Shaw
Field Engineering Services
Santa Clara
Direct Line: 408-754-6760
Email: James.R.Shaw@us.ul.com

MICROFILM AT FINAL

cc: Mr Tom Melavic - Supervisor
CITY OF SACRAMENTO



West Coast Division
Camas Office
2600 N.W. Lake Rd.
Camas, WA 98607-9526
www.ul.com/field

Preliminary Findings Report

For

Dead Front Switch-Board

Installation Site:

925 "L" Street
Sacramento, CA 95814

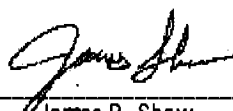
Requested by :

Specialized Electrical Power Panel
5205 State Street
Montclair, CA 91763-6235

Jurisdiction:

CITY OF SACRAMENTO
Sacramento, CA 95814

UL Reference No.: Proj: 05CA55194
File: FE2267

Submitted by: 
James R. Shaw
Field Engineer

Date: December 11, 2005

Reviewed by: 
Alan Pordes
Manager, Field Evaluations

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1.0 Executive Summary

Federal OSHA and many local jurisdictional regulations require products to be Listed or Evaluated by a recognized testing organization. Field Evaluations are one means to assure that custom or otherwise non-certified products meet applicable product safety standards, Codes, Safety Orders, or other industry standards. A Field Evaluation provides an unbiased independent assessment of products to the essential requirements of applicable product safety standard(s) for a specific end use location. The engineering assessment provides the Authority Having Jurisdiction with information to assist in the decision on approval of the product and related installation. The purpose of this project was to provide an assessment on a product that was not Listed or otherwise found not to be certified by a testing laboratory recognized by the Authority Having Jurisdiction. Products undergoing this evaluation process do not result in establishing a UL Listing, UL Recognition, or UL Classification. UL has not established a factory follow-up service program to determine the conformance of any subsequently produced, relocated, or otherwise altered product(s) or system(s).

At the request of Mr. Paul Volkov of Specialized Electrical Power Panel, a Field Evaluation project was initiated. The preliminary evaluation was completed at 925 "L" Street, Sacramento, California, on December 10, 2005 by UL Engineer, James R. Shaw.

The results of the preliminary evaluation and testing identified items that are not in compliance with the applicable product safety standard(s) and therefore require corrective action(s) as detailed in Section 7.0 of this report. When these discrepancies are corrected, a final inspection and any remaining testing will be required to complete the Field Evaluation. If this follow-up evaluation determines all issues are resolved and the product to be in compliance, UL will consider the product acceptable and will apply the Field Evaluated Product Mark.

Please note that final approval of this product and the installation is by the CITY OF SACRAMENTO inspecting authority.

2.0 Conditions of Acceptability

Except where otherwise stated in the product description and evaluation sections of this report, this evaluation and the application of the Field Evaluated Product Mark is subject to the following Conditions of Acceptability.

- 2.1 Except for like-for-like component replacement in the event of component failure, no change, alteration, or addition to the product or system shall be made that would alter the construction, operation, function, layout, source of supply, physical location, or any other change, alteration, or addition that may be made to the product. If such changes, alterations, or additions to the product occur, the Field Evaluated Product Mark shall be considered invalid and a separate evaluation shall be required to determine compliance with the applicable product safety Standards under the changed conditions.
- 2.2 The completed evaluation and application of the UL Field Evaluated Product Mark by UL does not assume liability on the part of UL and does not relieve the manufacturer, installer, user, or other relevant parties of their responsibilities. The product evaluation is based on adherence to sound engineering practices, and compliance with the applicable product safety standards and installation Code.
- 2.3 This evaluation considered the risks associated with electric shock, fire, and casualty hazards as specified in the evaluation section of the report only. No other hazards were evaluated during this evaluation.
- 2.4 Unless otherwise stated in the product description, this product was evaluated for installation in an indoor, dry, normal environment only. The product was not evaluated for installation in any hazardous classified location as defined in the latest edition National Electrical Code as adopted by the National Fire Protection Association. The product was not evaluated for installation in an environment where subject to rainfall, water spray, steam, or exposure to any corrosive chemicals that will cause deterioration of the enclosure or components. If such environment is encountered in the future, the product will require re-evaluation.
- 2.5 The UL Field Evaluated Product Mark shall not be considered as equivalent to the UL Listing Mark, UL Recognized Component Mark, or UL Classified Product Mark. The UL Field Evaluated Product Mark indicates compliance with the applicable parts of the Standards referenced in Section 4 at the time the Mark was applied and with consideration only for the final installation site. The applicable parts included in the evaluation are the construction review, markings, and those testing protocols that are non-destructive.

3.0 Referenced Standards

- UL 891, Standard for Safety for Dead-Front Switchboards, 10th Edition, revised: December 23, 1998
 - NFPA 70 National Electrical Code (NEC), 2005
- Note: The NEC is only referenced for those construction features necessary to ensure the product can be properly installed in accordance with the NEC.

4.0 Product Evaluated

4.1 Dead Front Switch-Board

Unit is a previously Listed deadfront switch board, section 1 of 3. Scope of work is to review the installation of a new main circuit breaker. The review also includes the associated bus structure to assess fault current ratings. Also reviewed was the Neutral bonding jumper, where two 500 kcmil cables were used in lieu of a bussing network. The construction and size of the cables were reviewed to UL891.

4.2 Nameplate Data

Manufacturer:	General Electric
Model number:	---
Serial number:	181-38078
Electrical ratings:	
Voltage	277/480 Volts AC
Current (FLA)	4000 A
Phase	3 phase, 4 wire
Frequency	60 Hertz

4.3 Main Overcurrent Protection

The main overcurrent protection was provided by:
Circuit Breaker; Manufactured by: General Electric
type: Power Break II
rated: 4000 amperes

5.0 Construction Evaluation

The following specific areas were evaluated using the procedure indicated. Unless stated otherwise in Section 7.0, all the following items were found to comply with the applicable part(s) of the referenced standard(s). Additional characteristics and features unique to the product, with consideration for the final installation site, were further addressed as required by the standard procedure and applicable product safety standard(s).

5.1 Construction Inspection

Method: A construction inspection was completed with particular emphasis on the following items.

- Critical component certification
- Guarding of live parts
- Grounding and bonding
- Overcurrent protection
- Drawings and instructions
- Conductor ampacities
- Spacings
- Wiring and wiring methods
- Terminations
- Separation of circuits
- Markings
- Damaged components

Results: The product was found to comply with the construction requirements identified above and the standard(s) indicated in Section 3.

5.2 Critical Components

Method: The following critical components were inspected for evidence of listing or recognition in accordance with UL policies:

- Circuit breakers
- Wire and cable assemblies

Results: The critical components identified above were found to be Listed or recognized by a testing laboratory acceptable to UL in accordance with UL policies.

5.3 Grounding and Bonding

Method: All accessible metal parts were verified visually and by test to be bonded together and to be connected to the supply equipment-grounding conductor. Where applicable, a bonding continuity test was conducted and the results recorded.

Results: The product was verified to be grounded and bonded in accordance with applicable standards referenced in Section 3 and Article 250 of the NEC. The product had an identified terminal for the connection of the supply equipment-grounding conductor or had a suitable cord supplied with equipment-grounding conductor included.

5.4 Guarding of Live Parts

Method: The product was visually inspected to ensure that all components were assembled in a suitable enclosure and made effectively inaccessible to unauthorized persons. An articulated finger probe was used to measure access where necessary. Vent openings were verified not to align with potential discharge paths for gases expelled from circuit breakers when clearing fault conditions.

Results: Enclosures were found to prevent contact with moving parts, electrically energized parts, and hot parts. Enclosures provided an acceptable degree of protection for internal components (according to the product's installation environment). All electrically live parts external to the enclosure were guarded as required by the applicable standards. There were no electrically hazardous energized parts accessible from the exterior of the ultimate enclosure as required by Section 110.27 of the NEC.

5.5 Wiring and Wiring Methods

Method: All conductors were inspected for Listing or Recognition by a recognized testing laboratory in accordance with UL policies. The conductors were examined for proper ratings (voltage, ampacity, temperature, flexibility, flame rating and environmental) as required for the application. The wiring methods were verified to comply with the applicable standards and provide proper physical protection including strain relief where applicable. The wiring terminations were inspected for correct application, number of conductors in accordance with their listing and correct ampacity based on temperature ratings.

Results: Detailed as follows.

5.5.1 Supply Connections-

The supply connection point(s) was examined and determined to have proper terminals and identification provided.

5.5.2 Wiring Methods-

Internal wiring methods conformed to the applicable standard. All wiring was routed, secured, and protected from moving parts, external heat sources, and sharp edges.

5.5.3 Separation of Circuits-

Unless provided with insulation rated for the highest voltage involved,) wiring of low voltage and line voltage circuits within enclosures were found to be segregated or separated by barriers. The product wiring for low voltage and line voltage circuits external to enclosures were found installed in separate raceways or wireways.

5.5.4 Wire Terminations-

All wire terminations were found to be suitable for the number and the size conductor installed.

5.5.5 Strain Relief-

N/A

5.5.6 Conduit Connections

All conduits, gutters, and wireways were found to be properly sized for the number and size of conductors and to be properly supported.

5.6 Overcurrent Protection

Method: The product was inspected to ensure proper overcurrent protection was provided for the internal conductors and components. Overcurrent devices were inspected for proper ratings including voltage, ampere rating, interrupting rating, suitability as branch circuit protection, where required, and Listing.

Results: Detailed as follows:

5.6.1 Supply

The product was verified as having main overcurrent protection as indicated in section 4.3, Main Overcurrent Protection. Internal overcurrent protection was verified as being properly rated for the intended application. All devices designed to open under fault conditions were verified as having proper short circuit interrupting ratings.

5.6.2 Conductors

Internal conductors to the product or installed as part of the product were determined to have proper overcurrent protection.

5.6.3 Components

Components such as transformers, heater elements, and motors were verified to have overcurrent protection with the correct ratings and proper type.

5.7 Suitability for Installation

Method: The product was inspected to ensure suitability for installation in accordance with the NEC as specified in the referenced standard(s). This inspection specifically determined if correct working space and clearances could be provided, that proper wire bending space for all field wiring was provided, provisions for mounting were provided, and areas for conduit entries, as applicable, were in place.

Results: Detailed as follows:

5.7.1 Wire Bending & Gutter Space

Wire bending space for all field wiring was verified as being in accordance with the NEC.

5.7.2 Clearance and Working Space

The product was verified that it is or could be installed with acceptable access, clearances, working spaces and distances from combustibles.

5.8 Markings

Method: The product nameplate was inspected to ensure all applicable information was provided. Other markings including hazard-warning labels, fuse replacement markings, environmental limitations and installation type markings were verified as being present, in the proper location, and provided in the correct format.

Results: Required Markings were evaluated for the product according to the applicable UL Standard(s). Additional markings were identified for the installation site, as the working environment requires.

5.8.1 Unit Nameplate

A permanent nameplate, suitable for the intended installation environment and with all the applicable information was verified as being present. The nameplate was verified as being visible or accessible after installation, or located for access in accordance with the provisions in the referenced standard(s).

5.8.2 Fuse Replacement

N/A

5.8.3 Hazard Warning Labels

Applicable hazard warning markings were installed on or internal to the product identifying known hazards.

6.0 Electrical Test Results

Testing was completed to verify the product was operating within normally expected parameters. Unless stated otherwise in Section 7.0, all the following items were found to comply with the applicable part(s) of the referenced standard(s). The testing completed, detailed in the following paragraphs, followed the production testing requirements in the applicable product safety standards but as a minimum included:

6.1 Grounding and Bonding

Method: Grounding and bonding continuity was verified by the ohmmeter method. The ohmmeter method verified only the grounding continuity from the supply equipment grounding conductor termination to any exposed conductive metal part that is likely to become energized. The current injection method applies an AC current of 10 amperes from the supply equipment grounding conductor termination to the farthest contiguous exposed conductive metal part likely to become energized and the voltage drop between the two test points is measured and recorded. The maximum resistance measured or calculated from the current test must be less than or equal to the requirement in the referenced product safety standard.

Results: The grounding continuity and/or bonding test results indicate that adequate electrical continuity or bonding is provided on the product.

6.2 Dielectric Voltage Withstand Tests

Method: Dielectric voltage withstand testing was completed on power circuits for the product in accordance with the production testing requirements in the referenced standard. Where sensitive electronic components were installed in these circuits, they were removed from the circuit or otherwise guarded to prevent damage from the test voltage. A test voltage as specified in the standard was applied between each phase and ground, based on the circuit voltage rating, for a period of one minute. The test results were recorded.

Results: The dielectric withstand voltage test results were found to be acceptable with no breakdown of insulation as evidenced by a flashover, rapid decrease in test voltage or tripping of the test equipment on excessive leakage current.

7.0 Evaluation Discrepancies

7.1 Fault Current Rating

The spacing between bus bars of opposite polarity is $\frac{1}{4}$ inches face-to-face where the busses transition from horizontal to vertical. A plastic insulator is provided between the busses (original equipment), however this insulation cannot be considered when using Supplement SB of UL891 in assessing the fault current rating of the switchboard. As a note, this spacing is at the existing bus structure, not the modified bus structure.

Action Required: The bus structure will need to be modified so that the spacing between the bus bars at opposite polarity complies with Supplement B and the unit will need to be marked with the required fault current rating.

Reference(s): UL891, Supplement B

8.0 Other Items Noted

The following items were noted during the evaluation that pertains to the installation of the equipment. These comments are outside the scope of our evaluation and *did not* prevent the Labeling of the equipment. These comments are provided for the AHJ to review and resolve as necessary.

8.1 Fire Pump Taps

The terminals for the fire pump taps are located in the same section as the main disconnect. This construction is not in compliance with the National Electrical Code, which requires the fire taps to be located in a separate switchboard section from the main disconnect.

Reference(s): NEC section 695.3 A1.

9.0 Test Equipment

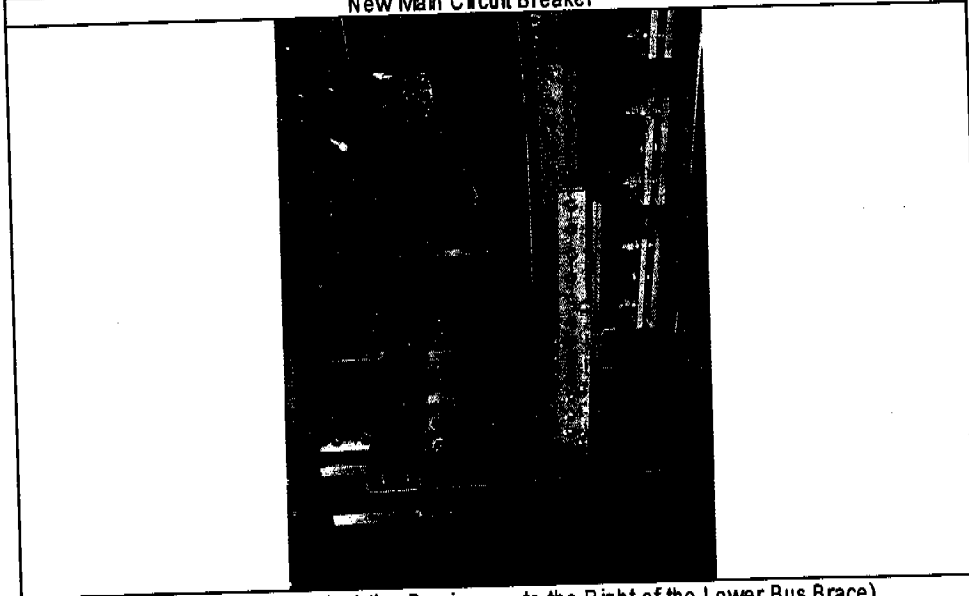
The following test equipment was used as part of the evaluation and testing on this project. The table below identifies this equipment along with the calibration information.

Equipment Name	Equipment Identification	Calibration Due Date
Compass		
Mitutoya Caliper	31389	12/27/2005
Tape Measure	33792	02/26/2008
Panel		
Fluke 87V Digital Multimeter	33805	01/31/2006
Hipot	33791	02/02/2006

APPENDIX A - Photographs



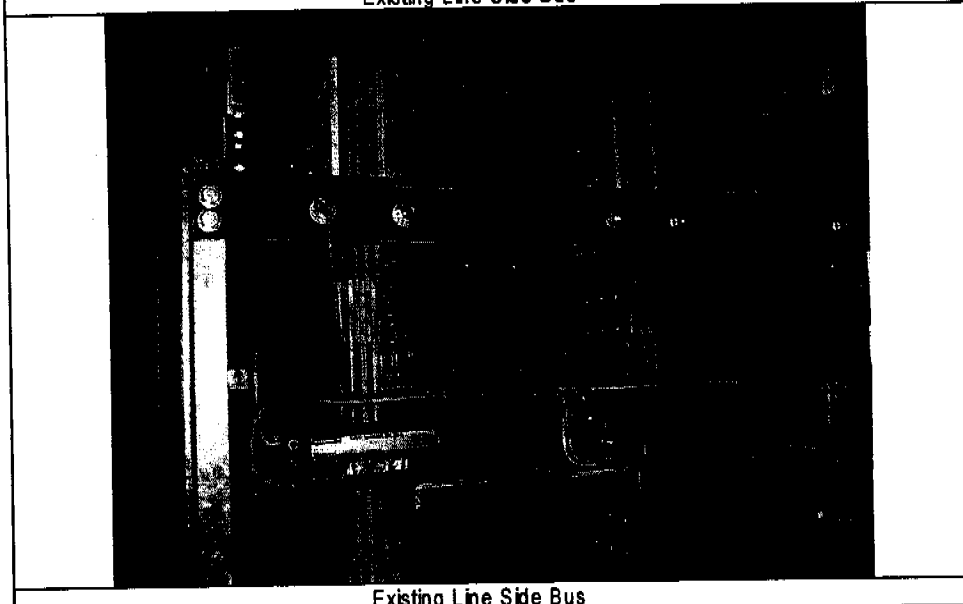
New Main Circuit Breaker



Line Side Bus Structure (Existing Bus is to the Right of the Lower Bus Brace)



Existing Line Side Bus



Existing Line Side Bus



AFTER HOURS OVERTIME INSPECTION

PERMIT # 925 L Street 0518066

JOB ADDRESS 925 L St.

CONTRACTOR Best Infrared SVC. Inc.

PHONE # _____ CELLULAR # 909-322-3906

Please Check One: RESIDENTIAL Chief Engineer
 COMMERCIAL Mike Ryder

DISCIPLINE: Building Plumbing Mechanical Electrical

FOR OFFICE USE ONLY

DATE OF INSPECTION 12-10-05

TIME OF INSPECTION 6:30 + 7:00 Pm.

INSPECTOR'S NAME Marc Busic

\$\$ FEE'S PAID Paid

supervisor approval initials MB