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## **QUALITY ASSURANCE/QUALITY CONTROL PROGRAM**

Quality defined, is freedom from errors or deficiencies. Quality consists of those product or service features which meet the needs of the Owner. Quality means adding value to the entire product and service process through the commitment to improvements.

Quiel Bros. Signs believes that a successful Quality Control Program involves the entire project team. Our program utilizes the following key methods:

Early Detection

Qualified Performers

Supervised Manufacturing

Progress Inspections

Underwriters Laboratory Inspections

Supervised Installations

Continuous Training

Meets California Title 24 Requirements (Green Energy Verified)

Quality control begins with early detection upon receipt of approved conceptual artist rendering drawings and development of construction working drawings. Specific focus is given to value added alternative fabrication and installation methods while reviewing the entire scope of work with the project team. All construction details are reviewed by supervisory personnel and management prior to any ordering of materials and construction of work. Upon commencement of construction and installation, the following methods are followed:

### **IN-HOUSE QC SHOP INSPECTION INCLUDES:**

- Drain holes clear
- Sign grounded properly
- Correct assembly
- Covers removed from ballasts
- Sign face clean
- Copy spacing correct
- Stiffeners tied in
- Colors match approved sketches
- Paint job is clean and without defects
- Screws touched up
- Neon crossovers blocked and painted
- Lamps all operating
- Specification labels installed
- Disconnect switches installed

## **SIGN FABRICATION AND INSTALLATION SPECIFICATIONS**

### 1. Sign Cabinet Framing

The main structural framework shall consist of an all-welded double angle truss frame designed for a wind load to meet code requirements. The plastic faces and metal retainers of this sign shall be designed for a wind load of thirty pounds per square foot.

All welding shall be done by certified welders in our plant in San Bernardino County. The licensed fabricator shall conform to all specifications as set forth in the best known practices of welding designated by the American Welding Society.

All struts, tie rods and frame bracing shall be installed in such a manner as to insure that no sag in the structural frame exists, with sign fully loaded with sign faces and all other internal components in place.

Steel for sign frame shall conform to specifications for structural steel, as adopted by the American Society for Testing Materials, Serial and Designation No. A36-62T, latest edition. Steel frame members within the sign shall be cleaned of grease and oil, after which all metal, which is not shop primed, or where prime coat is damaged, shall receive one coat of metal primer.

### 2. Metal Fabrication and Service Access

All exposed metal work shall be first class in every respect with all joints and breaks true to line. Sign cabinet shall be fabricated with a minimum of visible seams and exposed hardware.

All reinforcing and attachment members necessary to fasten the metal work to the structural frame shall be provided. Reinforcing members shall be spaced as required to assure flat, unyielding edging panels.

Removal panels at ends and top shall be provided for servicing ballasts, neon transformers, lamps and sockets.

### 3. Electrical Components

All electrical materials, such as ballasts, neon transformers, lamps, sockets, connectors, and all other equipment shall be new and shall be listed by Underwriter's Laboratories, Inc.

#### A. Lamps

The translucent plastic faced signs shall be illuminated from within by 800 MA high output fluorescent lamps spaced 12" on center. Lamps shall be General Electric, Sylvania, or approved equal.

#### B. Ballasts

All lamps shall be powered by Jefferson, France or General Electric ballasts as manufactured for sign use. There shall be the exact number and arrangement of lamps per ballast as specified by the ballast manufacturer, with no exceptions. Each ballast shall be easily accessible for maintenance.

C. Wiring

All wiring shall be AWM 90 degree centigrade 1000 volt TW/MTW UL file #E18971. Wiring connectors for wire splicing shall be U.L. approved 1000V capacity. They shall be Scotch Lok type Y or R or an approved equal. All splices shall be so placed as to be easily accessible for inspection and/or repair.

D. Sockets

All lamp holders shall be Kulka Brand with silver-coated contacts for use with 800 MA lamps.

E. Disconnect Switch

All cabinet signs shall be equipped with an approved water proof disconnect 20 amp rated switch as manufactured by Bell Electric Co., or approved equal, with enough circuits and capacity to control all primary wiring within the sign.

4. Plastic

A. Plastic background and overlays shall be type G Cast Acrylic plastic.

B. The plastic background shall be constructed of minimum thickness of 3/16".

C. All applied plastic letters and symbols shall be 1/8" in thickness, bonded permanently to the background with solvent of Methylene Chloride.

D. The manufacturer's procedure for welded butt joints will be used on permanently joined assemblies. Routed areas will be reinforced with clear plastic. Plastic faces shall be engineered to insure surface uniformity. The application of letters to the plastic background shall be permanently annealed to the background. Clear plastic vertical stiffeners approximately 2" X 3/8" shall be tied back to the sign framing. Faces shall be suspended from continuous hanging bars and be free from light leaks.

E. Use 3M vinyl films, which are durable, dimensional stable 3M films, which are designed for use on exterior signs. These films have uniform color in both reflected light and transmitted light, and they have low gloss to eliminate glare from the sun.

5. Painted Finishes

All interior and exterior surfaces of sign faces and cabinet edges shall be primed with Metal Pre-treat Primer and finished with one coat of Acrylic Polyurethane. The finish will be dust free, with a hard durable satin finish.

6. Neon Manufacturing and Installation

Neon manufacturing and installation to conform to the "Quality Neon Manufacturing Procedure" (see attached guidelines).

7. Shop Drawings and Patterns

Fabrication will be from full-sized patterns, showing accurately the size, style and spacing of lettering.

8. Installation or Erection

Signs shall be completely installed or erected, including foundations and steel supports and connected to primary wiring to be supplied by Owner within six (6) feet of signs at location specified by sign contractor. All bolts and fasteners shall be zinc or electro galvanized finish.

9. Certifications

In acceptance of the work to be performed, sign contractor certifies and agrees that:

Contractor holds, in good standing, Municipal, State Contractor's C-45, C-10, and all other licenses required by law for the legal codes, ordinances, and State and Federal regulations; and present evidence of final inspections, including labels of the Underwriter's Laboratories, Inc.

Workmen are protected by compensation insurance, and that the company is covered in the amount of \$2,000,000.00 against legal liabilities for damage to property or use thereof.

That contractor is financially able to complete all work undertaken, that it has no labor liens or unsatisfied judgments outstanding.

10. Workmanship

All work shall be performed in a first-class and workmanlike manner by experienced workmen and in direct employ of sign contractor. All work shall be square, plumb, straight and true, providing all support and anchoring means as required for proper installation.

11. Clean-up

During the process of the work, the premises shall be kept reasonably free of all debris and waste materials resulting from the work under this section. Upon completion and before final acceptance of the work, all debris, rubbish, leftover materials, tools, and equipment shall be removed from the site.

**INSTALLATION QC INSPECTION INCLUDES:**

- All exterior surfaces cleaned
- Paint touched up on structure and frame
- All doors and covers installed
- Switches installed
- Sign square with property and plumb
- Rotator wires cleared
- Sign or pole properly grounded to conduit
- Hook-up complete to building power
- Sign operated by building current
- Sign operated by portable plant
- Time switch installed if required
- Photo cell installed if required
- Magnetic relays installed if required
- Labels visible from street
- UL labels visible from street