

SECTION 10 14 00.10

EXTERIOR SIGNAGE
08/17

PART 1 GENERAL

1.1 REFERENCES

The publications listed below form a part of this specification to the extent referenced. The publications are referred to within the text by the basic designation only.

ASTM INTERNATIONAL (ASTM)

ASTM E84 (2023) Standard Test Method for Surface Burning Characteristics of Building Materials

JAPANESE STANDARDS ASSOCIATION (JSA)

JIS G 3101 (2020) Rolled Steels for General Structure

JIS G 3302 (2022) Hot Dip Zinc Coated Steel Sheet and Strip

JIS G 3466 (2021) Carbon Steel Square and Rectangular Tubes for General Structure

JIS H 4000 (2017) Aluminium and Aluminium Alloy Sheets, Strips and Plates (Amendment 1)

JIS H 4040 (2015) Aluminum and Aluminum Alloy Bars and Wires

JIS H 5202 (2010) Aluminum Alloy Castings

JIS H 8602 (2010) Combined Coatings of Anodic Oxide and Organic Coatings on Aluminum and Aluminum Alloys

JIS H 8641 (2021) Hot Dip Galvanized Coatings

JIS K 5906 (1998) Aluminum Pigments For Paints

JIS K 6735 (2014) Plastics - Polycarbonate sheets - Types, dimensions and characteristics

JIS R 3205 (2005) Laminated Glass

JIS Z 3001 (2013) Welding and Allied Processes - Vocabulary - Part 6: Resistance Welding

JIS Z 3410 (2013) Welding Coordination - Tasks and Responsibilities

JIS Z 3801 (2018) Standard Qualification Test and

[PROJECT TITLE]
[PROJECT LOCATION], Japan

[JED TECHNICAL SERVICES REFERENCE NUMBER]

JIS Z 3841

Acceptance Requirements for Manual Welding
Technique

(2018) Standard Qualification Test and
Acceptance Requirements for Semi-Automatic
Welding Technique

NATIONAL FIRE PROTECTION ASSOCIATION (NFPA)

NFPA 70

(2023; ERTA 7 2023; TIA 23-15) National
Electrical Code

1.2 GENERAL REQUIREMENTS

All exterior signage must be provided by a single manufacturer. Exterior signage must be of the design, detail, sizes, types, and message content shown on the drawings, must conform to the requirements specified, and must be provided at the locations indicated. Submit exterior signage schedule in electronic media with spread sheet format. Spread sheet must include sign location, sign type, and message. Signs must be complete with lettering, framing as detailed, and related components for a complete installation. Each sample must consist of a complete sign panel with letters and symbols. Samples may be installed in the work, provided each sample is identified and location recorded. Submit [three] [_____] color samples for each material requiring color and 300 mm square sample of sign face color sample.

1.2.1 Wind Load Requirements

Exterior signage must be designed to withstand [_____] km/h windload. Submit design analysis and supporting calculations performed in support of specified signage.

1.2.2 Character Proportions and Heights

Letters and numbers on indicated signs for handicapped-accessible buildings must have a width-to-height ratio between 3:5 and 1:1 and a stroke-width-to-height ratio between 1:5 and 1:10. Characters and numbers on indicated signs must be sized according to the viewing distance from which they are to be read. The minimum height is measured using an upper case letter "X". Lower case characters are permitted.

1.3 SUBMITTALS

Government approval is required for submittals with a "G" designation; submittals not having a "G" designation are for [Contractor Quality Control approval.] [information only. When used, a designation following the "G" designation identifies the office that will review the submittal for the Government.] Submittals with an "S" are for inclusion in the Sustainability eNotebook, in conformance to Section 01 33 29 SUSTAINABILITY REPORTING. Submit the following in accordance with Section 01 33 00 SUBMITTAL PROCEDURES:

SD-02 Shop Drawings

Approved Detail Drawings; G[, [_____]]

SD-10 Operation and Maintenance Data

[SOLICITATION NUMBER]

SECT:[CONCEPT/INTERMEDIATE/FINAL/FINAL BACKCHECK/RTA]

Protection and Cleaning; G[, [_____]]

1.4 QUALIFICATIONS

Signs, plaques, and dimensional letters must be the standard product of a manufacturer regularly engaged in the manufacture of the products. Items of equipment must essentially duplicate equipment that has been in satisfactory use at least 2 years prior to bid opening.

1.5 DELIVERY AND STORAGE

Materials must be wrapped for shipment and storage, delivered to the jobsite in manufacturer's original packaging, and stored in a clean, dry area in accordance with manufacturer's instructions.

1.6 WARRANTY

Manufacturer's standard performance guarantees or warranties that extend beyond a one year period must be provided.

1.7 EXTRA STOCK

Provide [_____] extra interchangeable message panels and extra stock of the following: [[_____] message bars of each color and size for sign types [_____.] [[_____] pressure-sensitive letters in each color and size for sign type [_____.] [[_____] changeable message strips for sign type [_____.]

PART 2 PRODUCTS

2.1 MODULAR EXTERIOR SIGNAGE SYSTEM

Exterior signage must consist of a system of coordinated directional, identification, and regulatory type signs located where shown. Dimensions, details, materials, message content, and design of signage must be as shown. Submit manufacturer's descriptive data and catalog cuts.

2.1.1 Free-Standing Base Mount Pylon/Monolith Type Signs

2.1.1.1 Framing

Interior framing must consist of [aluminum] [or] [galvanized steel] tube columns welded to companion plates. Perimeter framing must consist of [aluminum] [or] [steel] angle framing welded to the post and plate system as designed. Framing members must be designed to permit [access to electrical equipment] [and] [panel removal]. Mounting must be provided as shown. Framing members of steel must be finished with semi-gloss baked enamel or two-component acrylic polyurethane. Openings must be sealed from moisture and made tamper-proof.

2.1.1.2 Exterior Sheeting Panels

Modular panels must be provided in sizes shown on drawings. Panels must be fabricated a minimum of [3 mm thick [aluminum] [steel]] [3 mm thick fiberglass reinforced plastic (FRP)]. [Panels must be heliarc welded to framing system [_____.]] Top and end panels must be removable and must be secured by 5 mm socket head jack nuts. Finish for metal panels must be [semi-gloss baked enamel] [two-component acrylic polyurethane] [anodized conforming to JIS H 8602].

2.1.1.3 Mounting

Mount by securing to concrete foundation as indicated.

2.1.1.4 Finishes

Base finish must be [semi-gloss baked enamel] [or] [two-component acrylic polyurethane] [anodized conforming to JIS H 8602] [____]. Metal panel system finish must be [baked enamel or two-component acrylic polyurethane] [anodized conforming to JIS H 8602 [____], as shown].

2.1.2 Panel And Post/Panel Type Signs

2.1.2.1 Posts

One-piece [aluminum] [or] [galvanized steel] posts must be provided with minimum 3.2 mm wall thickness. Posts must be designed to accept panel framing system described. The post must be designed to permit attachment of panel framing system without exposed fasteners. Caps must be provided for each post.

2.1.2.2 Panel Framing System

Panel framing consisting of aluminum sections and interlocking track components must be designed to interlock with posts with concealed fasteners.

2.1.2.3 Panels

Modular message panels must be provided in sizes shown on drawings. Panels must be fabricated a minimum of [3 mm aluminum] [3 mm acrylic] [3 mm fiberglass reinforced plastic (FRP)]. [Panels must be designed to be interchangeable.] [Panels with metal return sheeting must have welded corners, ground smooth.] [Panels must be heliarc welded to framing system.] [Face panels must be removable to provide access to electrical components.]

2.1.2.4 Finishes

Post finish must be [semi-gloss baked enamel] [or] [two-component acrylic polyurethane] [anodized conforming to JIS H 8602] [____]. Metal panel system finish must be [baked enamel or two-component acrylic polyurethane] [anodized conforming to JIS H 8602 [____], as shown].

2.1.2.5 Mounting

[Provide permanent mounting by embedding posts in concrete foundation as indicated.] [Provide removable mounting by [[a steel] [an aluminum]] [[sleeve] [flange]] embedded in concrete as indicated.]

2.1.3 Changeable Letter Directories

2.1.3.1 Frame and Trim

Aluminum alloy finish must be [____].

2.1.3.2 Header Plates

[Header plate must consist of background metal matching frame and having raised letters attached through the back.] [Header plate must consist of acrylic with raised acrylic letters.] [Header plate must consist of MP plastic with raised letters.]

2.1.3.3 Door Glazing

Door glazing must be [clear safety or tempered glass minimum 6 mm thick.] [clear acrylic sheet 5 mm thick.] [clear polycarbonate sheet [5] [6] mm thick.]

2.1.3.4 Door Construction

Door frame must be of same material and finish as surrounding frame. Corners must be mitered [, reinforced] [, welded], and assembled with concealed fasteners. Hinges must be standard with manufacturer, in finish to match frames and trim. Glazing must be set in frame with resilient glazing channels.

2.1.3.5 Door Locks

Door locks must be manufacturer's standard and must be keyed alike.

2.1.3.6 Fabrication

Frames and trim must be assembled with corners [reinforced] [welded] and mitered to hairline fit, with no exposed fasteners. Removable changeable directory panel must consist of [6 mm thick white acrylic with clear acrylic letter tracks] [exterior grade plywood] [aluminum] [rubber] back with [vinyl] [polycarbonate] [corkboard] covering backgrooved 6 mm on centers to receive letters.

2.1.3.7 Finishes

Post finish must be [semi-gloss baked enamel] [or] [two-component acrylic polyurethane] [anodized conforming to JIS H 8602] [____]. Metal panel system finish must be [baked enamel or two-component acrylic polyurethane] [anodized conforming to JIS H 8602 [____], as shown].

2.1.3.8 Mounting

Directories must be mounted to supporting structures with concealed fasteners in accordance with manufacturer's instructions.

2.1.3.9 Changeable Letters

Changeable letters must be upper-case or upper and lower-case [helvetica medium] [____]. Tabbed vinyl letters and numbers must be furnished in accordance with the [drawings] [and] [schedule].

2.2 ILLUMINATION

Concealed lighting must be provided within panel framing members. Lighting must be controlled by a photocell device. [Top] [Back] lighting and electrical equipment must be provided by UL or FM listed and comply with NFPA 70. Illumination must be evenly distributed. A switch on the interior of the sign must be provided to turn off power in the sign.

Switch must be readily accessible when sign is open.

2.3 GRAPHICS FOR EXTERIOR SIGNAGE SYSTEMS

2.3.1 Graphics

Signage graphics must conform to the following:

- [a. [Cast] [Custom fabricated] [Plate] aluminum letters, [6] [13] [_____] mm thick must be provided and fastened to the message panel with concealed fasteners. Letters must project [_____] mm from face of panel.]
- [b. Pressure sensitive precision cut vinyl letters [with reflecting surface] [_____] must be provided.]
- [c. Message must be applied to panel using the silkscreen process. Silkscreened images must be executed with photo screens prepared from original art. Handcut screens will not be accepted. Original art must be defined as artwork that is a first generation pattern of the original specified art. Edges and corners must be clean. Rounded corners, cut or ragged edges, edge buildup, bleeding or surfaces pinholes will not be accepted.]
- [d. Message letters must be cut out from panel. Panel cutouts must be backed with [2.0 mm FRP] [3.2 mm acrylic] where cutouts occur.]
- [e. Message must be cut out from panel. Acrylic letters [3] [6] [13] mm thick must be projected through the cutout area and chemically welded to 3.2 mm thick acrylic backup sheet.]
- [f. Message must be embedded in FRP sheet and completely covered with thermosetting polyester resin. Message must be embedded minimum 1 mm. Sheets must be processed in one piece, in one process, to prevent delamination.]
- [g. Message must be applied using the frisket method. Photomechanically reproduced graphic masks must be applied to the sign face which has been coated with the graphics color. A background must then be applied to the exposed surfaces. Handcut masks will not be accepted. Edges that are nicked, cut, or ragged will not be acceptable. A protective overcoat containing UV-resistant additives must be applied.]
- [h. Message must be engraved in non-corrosive, three-ply fiberglass laminate. Message must be core color or paint filled multiple colors.]

2.3.2 Messages

See [drawings] [and] [schedule] for message content. Typeface: [Helvetica medium] [_____]. Type size [_____] [as indicated].

2.4 METAL PLAQUES

Design and location of plaques must be as indicated.

2.4.1 Cast Metal Plaques

2.4.1.1 Fabrication

Cast metal plaques must have the logo, emblem and artwork cast in the [bas relief] [flat relief] [_____] technique. Plaques must be fabricated from [prime aluminum] [bronze] [yellow brass].

2.4.1.2 Size

Plaque size must be [_____] [as indicated].

2.4.1.3 Border

Border must be [flat band] [plain edge] [bevel] [custom ornamental as indicated] [_____].

2.4.1.4 Background

Background texture must be [leather] [fine pebble] [_____].

2.4.1.5 Mounting

Mounting must be [concealed] [rosettes and anchors] [rosettes and toggle bolts] [invisible] [_____].

2.4.1.6 Finish

Finishes must consist of [aluminum light colored sandblasted background. Letters must be satin polished and entire plaque must be sprayed with two coats of clear lacquer.] [aluminum with background sprayed dark gunmetal colored lacquer. Letters must be satin polished and entire plaque sprayed with two coats clear lacquer.] [bronze with dark finish oxidized background. Letters must be satin polished and entire plaque sprayed with two coats of clear lacquer.] [[aluminum] [bronze] with sprayed background. Letters must be satin polished.]

2.4.2 Chemically Etched Metal Plaques

2.4.2.1 Fabrication

Plaque must be chemically [single-] [double-] etched one-piece [brass] [bronze] [_____] mm thick.

2.4.2.2 Size

Plaque size must be [_____] [as shown].

2.4.2.3 Finish

[Single-etched raised areas must be in [gold-tone] [silver-tone] [bronze-tone] finish and recessed areas must be colorfilled.]
[Double-etched raised areas must be [gold-tone] [silver-tone] and recessed textured areas must be [gold-tone] [silver-tone] colorfilled.]

2.4.3 Frost and Surface Oxidized Plaques

2.4.3.1 Fabrication

Plaque must be frosted and surface oxidized one - piece [anodized aluminum] [brass] [bronze] [stainless steel] [_____] mm thick.

2.4.3.2 Size

Plaque size must be [_____] [as shown].

2.4.3.3 Finish

[Material finish must be [satin] [polished].] [Frosted areas must be oxidized [black for aluminum or stainless steel] [or] [black or brown, for brass or bronze].]

2.5 DIMENSIONAL BUILDING LETTERS

2.5.1 Fabrication

Letters must be fabricated from [cast aluminum] [cast bronze] [2 mm aluminum sheet] [3 mm aluminum sheet] [extruded aluminum] [_____.] Letters must be cleaned by chemical etching or cleaned ultrasonically in a special degreasing bath. Letters must be packaged for protection until installation.

2.5.2 Typeface

Typeface must be [helvetica medium] [_____] [as indicated].

2.5.3 Size

Letter size must be [_____] [as indicated].

2.5.4 Finish

[Anodized aluminum] [Baked enamel or two-component acrylic polyurethane] [[Polished] [Oxidized] bronze with clear coat] finish must be provided.

2.5.5 Mounting

[Threaded studs] [Steel U-bracket, cap screws, and expansion bolts] of number and size as recommended by manufacturer, must be used for concealed anchorage. Letters which project from the building line must have stud spacer sleeves. Letters, studs, and sleeves must be of the same material. Supply templates for mounting.

2.6 ALUMINUM ALLOY PRODUCTS

Aluminum alloy products must conform to JIS H 4000 for sheet or plate, JIS H 4040 for extrusions and JIS H 5202 for castings. Aluminum extrusions must be provided at least 3 mm thick and aluminum plate or sheet at least 16 gauge thick. Welding for aluminum products must conform to JIS Z 3001.

2.7 ANODIC COATING

Anodized finish must conform to JIS H 8602 as follows:

- [Clear (natural.)]
- [Integrated color anodized.]
- [Electrolytically deposited color - anodized.]

2.8 ORGANIC COATING

Clean, prime and give surfaces a [semi-gloss baked enamel] [or] [two-component acrylic polyurethane] finish in accordance with JIS K 5906, AMP 505, with total dry film thickness not less than 0.030 mm.

2.9 STEEL PRODUCTS

Structural steel products must conform to JIS G 3466. Sheet and strip steel products must conform to JIS G 3101. Welding for steel products must conform to JIS Z 3801.

2.10 CAST BRONZE

Fabricate components with sharp corners, flat faces, and accurate profiles. Remove and polish burrs and rough spots. Finish faces to a uniform high luster.

2.11 VINYL SHEETING FOR GRAPHICS

Vinyl sheeting must be 5 to 7 year premium type and must be in accordance with the flammability requirements of ASTM E84 and must be a minimum 0.08 mm film thickness. Film must include a precoated pressure sensitive adhesive backing, Class 1, or positionable pressure sensitive adhesive backing, Class 3.

2.12 ACRYLIC SHEET

Acrylic sheet must be in accordance with the flammability requirements of ASTM E84 and must conform to JIS R 3205.

2.13 POLYCARBONATE SHEET

Polycarbonate sheet must conform to JIS K 6735.

2.14 ANCHORS AND FASTENERS

Exposed anchor and fastener materials must be compatible with metal to which applied and must match in color and finish and must be non-rusting, non-corroding, and non-staining. Exposed fasteners must be tamper-proof.

2.15 SHOP FABRICATION AND MANUFACTURE

2.15.1 Factory Workmanship

Work must be assembled in the shop, as far as practical, ready for installation at the site. Work that cannot be shop assembled must be given a trial fit in the shop to ensure proper field assembly. Holes for bolts and screws must be drilled or punched. Drilling and punching must produce clean, true lines and surfaces. Welding to or on structural steel must be in accordance with JIS Z 3801, JIS Z 3410 and JIS Z 3841. Welding must be continuous along the entire area of contact. Exposed welds must

be ground smooth. Exposed surfaces of work must have a smooth finish and exposed riveting must be flush. Fastenings must be concealed where practical. Items specified to be galvanized must be by hot-dip process after fabrication if practical. Galvanization must be in accordance with JIS G 3302 and JIS H 8641, as applicable. Other metallic coatings of steel sheet must be in accordance with JIS G 3302. Joints exposed to the weather must be formed to exclude water. Drainage and weep holes must be included as required to prevent condensation buildup.

2.15.2 Dissimilar Materials

Where dissimilar metals are in contact, or where aluminum is in contact with concrete, mortar, masonry, wet or pressure-treated wood, or absorptive materials subject to wetting, the surfaces must be protected with a coat of asphalt varnish or a coat of zinc-molybdate primer to prevent galvanic or corrosive action.

2.15.3 Shop Painting

Surfaces of miscellaneous metal work, except nonferrous metal, corrosion resisting steel, and zinc-coated work, must be given one coat of zinc-molybdate primer or an approved rust-resisting treatment and metallic primer in accordance with manufacturer's standard practice. Surfaces of items to be embedded in concrete must not be painted. Upon completion of work, damaged surfaces must be recoated.

2.16 COLOR, FINISH, AND CONTRAST

Color must be [in accordance with Section 09 06 00 SCHEDULES FOR FINISHES.] [as indicated on the drawings.] [selected from manufacturers standard colors.] [[_____.] Color listed is not intended to limit the selection of equal colors from other manufacturers.] For buildings required to be handicapped-accessible, the characters and background of signs must be eggshell, matte, or other non-glare finish. Characters and symbols must contrast with their background - either light characters on a dark background or dark characters on a light background.

PART 3 EXECUTION

3.1 INSTALLATION

Signs, plaques, or dimensional letters must be installed in accordance with approved manufacturer's instructions at locations shown on the approved detail drawings; submit drawings showing elevations of each type of sign; dimensions, details, and methods of mounting or anchoring; shape and thickness of materials; and details of construction. A schedule showing the location, each sign type, and message must be included. Circuits installed underground must conform to the requirements of Section 33 71 02 UNDERGROUND ELECTRICAL DISTRIBUTION. Steel conduits installed underground and illuminated signage mounted directly on buildings must be in conformance with the requirements of Section 26 20 00 INTERIOR DISTRIBUTION SYSTEM. Signs must be installed plumb and true at mounting heights indicated, and by method shown or specified. Signs mounted on other surfaces must not be installed until finishes on such surfaces have been completed. Submit manufacturer's installation instructions and cleaning instructions.

3.1.1 Anchorage

Anchorage and fastener materials must be in accordance with approved manufacturer's instructions for the indicated substrate. Anchorage not otherwise specified or indicated must include slotted inserts, expansion shields, and powder-driven fasteners when approved for concrete; toggle bolts and through bolts for masonry; machine carriage bolts for steel; lag bolts and screws for wood.

3.1.2 Protection and Cleaning

The work must be protected against damage during construction. Hardware and electrical equipment must be adjusted for proper operation. Glass, frames, and other sign surfaces must be cleaned in accordance with manufacturer's instructions. After signs are completed and inspected, cover all project identification, directional, and other signs which may mislead the public. Covering must be maintained until instructed to be removed by the Contracting Officer or until the facility is to be opened for business. Submit [six] [_____] copies of maintenance instructions listing routine maintenance procedures, possible breakdowns and repairs, and troubleshooting guides. The instructions must include simplified diagrams for the equipment as installed. Signs must be cleaned, as required, at time of cover removal.

3.2 FIELD PAINTED FINISH

Miscellaneous metals and frames must be field painted in accordance with Section 09 90 00 PAINTS AND COATINGS. Anodized metals, masonry, and glass must be protected from paint. Finish must be free of scratches or other blemishes.

-- End of Section --