Section 10 14 23 Panel Signage

CUSTOM HIGH PRESSURE LAMINATE GRAPHIC PANELS

PART 1 GENERAL

1.01 SUMMARY

A. Section includes manufacture and supply of custom digitally printed graphic panels encapsulated in exterior-grade Custom High Pressure Laminate (CHPL), including specified fabrication, finishes, mounting accessories, and closeout documents.
B. Coordinate installation with Drawings, approved Shop Drawings, and applicable requirements of other Sections. Installation is performed by the Contractor or designated qualified installer; the panel manufacturer supplies installation instructions.
C. Read this Section with the Conditions of the Contract and Division 01 requirements. Coordinate artwork, panel dimensions, supports, fasteners, delivery, and installation responsibilities before fabrication.

1.02 REFERENCES

A. NEMA LD 3, High-Pressure Decorative Laminates, including applicable fabrication and installation guidance.
B. ASTM E84, Standard Test Method for Surface Burning Characteristics of Building Materials.
C. Accelerated weathering: ASTM G90-1, as identified in the manufacturer's laboratory reports. Refer to the reports for the applicable edition, exposure procedure, and test conditions.

1.03 DEFINITIONS

A. CHPL: Thermosetting laminate consisting of phenolic-resin-impregnated kraft core papers, digitally printed graphic paper, and melamine-based protective surface layers consolidated under heat and pressure.
B. MD: Machine direction. CD: Cross direction. Proof: Electronic document submitted for content review. Color sample: Physical laminate sample submitted for color and finish review.

1.04 QUALITY ASSURANCE

A. Manufacturer qualifications: Minimum five years of experience producing CHPL panels for projects of similar size and scope.
B. Production personnel: Minimum two years of demonstrated experience in applicable fabrication or imaging work.
C. References: Submit four customer references for projects of similar size and scope completed within the preceding two years. Identify at least two successfully completed comparable projects.
D. Single-source production: Perform printing, pressing, machining, finishing, and crating in one manufacturing facility to maintain consistent production control.
E. Comply with worker-safety and environmental requirements applicable at the manufacturing location.

1.05 ACTION SUBMITTALS

A. Product Data: Submit product construction, thicknesses, finishes, available panel sizes, fabrication limits, mounting requirements, and cleaning instructions.
B. Shop Drawings: Show panel identification, dimensions, thicknesses, shapes, image orientation, mural layout and seams, cutouts, hole locations, mounting details, substrates, and support interfaces. Coordinate panel fabrication drawings with installation drawings prepared by the Contractor.
C. Artwork proofs: Submit project-specific electronic PDF proofs for review of content, layout, spelling, image placement, and panel identification.

D. Color and finish samples: Submit project-specific samples at least 8 by 10 inches, nominally 0.060 inch thick, produced from final production-ready artwork. Identify proposed finish and production color references.
E. Approval: Obtain written approval of proofs, samples, and Shop Drawings from the Architect or Owner's designated representative before production. Do not proceed with affected work until approval is received.

1.06 INFORMATIONAL AND CLOSEOUT SUBMITTALS

A. Submit manufacturer qualifications, customer references, and comparable-project information.
B. Submit independent laboratory reports supporting specified mechanical, fire, weathering, and toxicity performance. Identify tested product, thickness, finish, test method, conditions, and results.
C. Submit documentation for FSC-certified kraft paper specified in Article 2.02. Identify supplier certification and material traceability; do not represent the finished product as FSC-certified without applicable certification.
D. Provide care and maintenance instructions, installation instructions, and written warranty for inclusion in the Project maintenance manuals.

1.07 DELIVERY STORAGE AND HANDLING

A. Coordinate production with approved artwork, samples, dimensions, and installation requirements. Confirm delivery dates with the manufacturer before ordering.
   1. Standard planning allowance: Three weeks for standard product delivery. Confirm the applicable start date, scope, and shipping allowance in the accepted production schedule.
B. Clean and inspect panels before packaging. Enclose panels in protective crates lined and blocked to prevent movement, surface abrasion, moisture exposure, and contact with transport equipment.
C. Include packing list, panel identification, cleaning and maintenance instructions, and warranty documents with shipment.
D. Manufacturer: Arrange delivery and insure shipment for its full contents value. Consignee: Report freight damage and other shipment damage to the manufacturer within 48 hours of receipt.
E. Store panels horizontally and protect them from damage. Condition materials before fabrication and installation as directed by the manufacturer.

1.08 WARRANTY

A. Provide a written, nonprorated manufacturer's warranty issued in the Owner's name, covering exterior panel durability against fading, delamination, and other material defects for ten years from Substantial Completion.

PART 2 PRODUCTS

2.01 MANUFACTURER

A. Basis-of-design manufacturer: iZone Imaging, 2526 Charter Oak Drive, Suite 100, Temple, Texas 76502; telephone 888-464-9663 or 254-778-0722; website izoneimaging.com.
B. Substitutions: Subject to the requirements of Division 01 and approval by the Architect.

2.02 MATERIALS AND CONSTRUCTION

A. Exterior-grade CHPL: Provide sufficient layers of FSC-certified, phenolic-resin-impregnated brown kraft paper to achieve the specified thickness. Encapsulate digitally printed saturation-grade paper within melamine-based protective layers and an optically clear UV-protective overlay.
B. Use UV-resistant, pigment-based process-color inks compatible with the manufacturer's lamination system.
C. Consolidate layers at approximately 1,200 psi and temperatures exceeding 275°F for the manufacturer's prescribed time.
D. Provide a graffiti-resistant surface compatible with the manufacturer's approved cleaning procedures.

E. UV protection: Provide the manufacturer's exterior-grade UV-protective overlay, supported by the manufacturer's applicable laboratory reports.
F. Panel thickness, size, shape, and graphic layout: As indicated on Drawings and approved Shop Drawings.
G. Finish: ICE, MATTE, or SATIN, as indicated on Drawings and approved physical samples. Provide a finish suitable for the indicated exposure.

2.03 PERFORMANCE REQUIREMENTS

A. Provide performance meeting the values in the following schedule for the applicable product construction. MD and CD values apply in the directions indicated.
B. Submit reports identifying the test methods, specimen thicknesses, conditioning, and acceptance criteria supporting each applicable value.
C. Surface burning: Provide standard Class B construction unless Class A is specified. Support the applicable flame-spread and smoke-developed indices with ASTM E84 reports for the panel construction supplied.
D. Toxicity: Submit evidence of LC50 Pittsburgh Protocol testing supporting performance no more toxic than wood or paper, as required by the Project.

Property	Condition or direction	Required value
Weight per unit area	1/4-inch panel	1.81 lb/ft²
Weight per unit area	3/8-inch panel	2.72 lb/ft²
Weight per unit area	1/2-inch panel	3.62 lb/ft²
Weight per unit area	3/4-inch panel	5.40 lb/ft²
Flexural strength	MD, minimum	125 MPa (18,000 psi)
Flexural strength	CD, minimum	82.7 MPa (12,000 psi)
Impact resistance	Minimum	1,900 mm (75 inches)
Tensile strength	MD, minimum	124 MPa (18,000 psi)
Tensile strength	CD, minimum	82.7 MPa (12,000 psi)
Modulus of elasticity	MD, minimum	11,000 MPa (1,600,000 psi)
Modulus of elasticity	CD, minimum	9,650 MPa (1,400,000 psi)
Class A construction	ASTM E84 flame spread / smoke developed	15 / 40
Standard Class B construction	ASTM E84 flame spread / smoke developed	60 / 175
Rockwell hardness	E scale, minimum	70
Dimensional stability	MD, maximum	0.3%
Dimensional stability	CD, maximum	0.7%
UV resistance	After 2,000 hours	No change
Boiling-water resistance	As documented in manufacturer's test report	No change

2.04 ARTWORK AND DIGITAL IMAGING

A. Artwork source: Owner, Architect, or designated designer supplies production-ready digital artwork, including text, photographs, line art, and other graphic elements, in the manufacturer's required formats.

B. File preparation: Use designers experienced in digital-print production. Review files for compliance with manufacturer requirements before submission. Transfer files using a manufacturer-approved electronic transfer method or accepted removable media.

C. Original materials: Protect original artwork from marking, cutting, alteration, and other damage. Return originals after completion and acceptance.
D. Printing: Image manufacturer-approved saturation-grade paper with UV-stable pigmented inks. Provide even color and consistent image reproduction. Printing resolution: Not less than 300 dpi; higher resolution up to 2,400 dpi where specified and supported by the production system.
E. Use technicians experienced in photographic reproduction, halftones, duotones, four-color process, and line art. Maintain documented equipment calibration, maintenance, and color-management procedures.
F. Color references: Use Pantone Solid Coated references where available. Match the approved physical laminate sample within the reproducible color gamut; electronic proofs are for content approval.
G. Maintain confidentiality of submitted technical details and color-management information in accordance with Project requirements.

2.05 FABRICATION

A. Cut, shape, drill, and finish panels in the same facility used for printing, pressing, and crating. Use computer-controlled equipment for precision fabrication.
B. Use carbide-tipped tools. Select tooling, feed rates, and spindle speeds to produce smooth edges without chipping.
    1. Where saw cutting is used, provide a minimum 10-inch-diameter, hollow-ground, 60- to 80-tooth carbide-tipped blade operating at a minimum 3,600 rpm.
C. C. Machine finished panel dimensions within ±0.060 inch of approved dimensions. Provide smooth finished edges.
D. D. Provide finish matching the approved sample. Finished surfaces shall be free of visible nicks, cuts, hairline cracks, blemishes, and other surface defects.

2.06 MOUNTING ACCESSORIES

A. Provide mounting hardware, supports, spacers, substrates, and applicable adhesives as indicated on approved Shop Drawings. Coordinate material compatibility and attachment details with the manufacturer and supporting construction.
B. Do not substitute an adhesive attachment for a specified mechanical mounting system.

2.07 SOURCE QUALITY CONTROL

A. Before crating, inspect dimensions, thickness, image clarity, alignment, color, finish, edge condition, scratches, chips, and flatness against approved submittals.
B. Reject and replace nonconforming panels at no additional cost. Clean accepted panels before protective packaging.

PART 3 EXECUTION

3.01 EXAMINATION

A. Inspect installation locations, substrates, supports, and access conditions. Coordinate installation sequence and schedule with the Contractor and Owner’s representative.
B. Before installation, inspect panels for image clarity, alignment, clean backgrounds, approved colors, thickness, and freedom from blemishes and defects.
C. Do not install damaged or nonconforming panels. Correct unsatisfactory conditions before proceeding.

3.02 PREPARATION

A. Verify panel identification, dimensions, orientation, and attachment locations against approved Shop Drawings.
B. Condition materials and prepare substrates in accordance with the panel manufacturer’s written instructions and applicable NEMA LD 3 guidance.
C. Clean and prepare bonding surfaces in accordance with the adhesive manufacturer’s instructions where adhesive bonding is specified.

3.03 INSTALLATION

A. Install panels using qualified personnel under the Contractor's direction. Follow approved installation Shop Drawings, panel manufacturer instructions, and applicable requirements of this Section.
B. Install panels securely, correctly oriented, and aligned with adjacent panels and building elements. Coordinate graphic continuity and mural seams with approved layouts.
C. Provide fasteners, supports, attachment spacing, clearances, and movement provisions indicated on approved Shop Drawings. Use mounting methods appropriate to panel thickness and exposure.
D. Where adhesives are specified, use only approved products suitable for the panel, substrate, and service conditions. Apply in accordance with the adhesive manufacturer's instructions.

3.04 FIELD QUALITY CONTROL

A. Inspect completed installation for secure attachment, alignment, graphic continuity, finish damage, and conformance with approved submittals.
B. Correct installation deficiencies. Replace panels damaged during installation or otherwise failing to meet specified requirements.

3.05 CLEANING AND PROTECTION

A. Clean completed surfaces using a soft, nonabrasive cloth and a good-quality glass cleaner approved by the panel manufacturer. Do not use abrasive cleaners.
B. Remove cleaner residue and leave panels clean. Protect finished work from damage until Substantial Completion.

3.06 CLOSEOUT

A. Deliver manufacturer's care and maintenance instructions, installation information, and warranty to the Contractor for inclusion in the Owner's maintenance manuals.

END OF SECTION