CONSTRUCTION SPECIFICATION INSTITUTE (CSI)

PART I - GENERAL SPECIFICATIONS

1.1 DOCUMENTS
This section of the specification forms part of the Contract Documents and is to be read, interpreted and coordinated with all other parts of the document.

1.2 SCOPE
The specification section applies only to the manufacture and supply of custom digitally printed artwork in Custom High Pressure Laminate.

1.3 DEFINITIONS

1.3.1 EXTERIOR GRADE CUSTOM HIGH PRESSURE LAMINATES
Custom High Pressure Laminate material composed of required layers of FSC Certified phenolic resin impregnated brown kraft filler paper to produce specified thicknesses, surfaced by a layer of melamine overlay, graphics imaged on saturation grade paper with UV resistant pigment based process color inks, and with an optically clear UV overlay that will resist no less that 99% of all sunlight and UV rays, as well as provides a graffiti resistant surface that allows for removal with standard cleaners.

1.3.2 MANUFACTURE
For purposes of this specification, layers of material described in 1.3.1 are to be assembled, and heat / pressure consolidated at approximately 1200 PSI at temperatures exceeding 275° Fahrenheit at manufacturer's prescribed time frames.

All manufacturing processes of printing, pressing, machining, finishing and crating to be accomplished within a single stand alone manufacturing facility to ensure consistent quality control and providing standard product delivery times of three weeks.

1.3.3 IMAGING / ARTWORK
The graphic material and images are to be supplied by and under the supervision of the architect, designer or end user on this project. To include mechanicals, text, photographs, transparencies, film and other graphic source materials incorporated into digital graphic production artwork files in manufacturer's required file formats. All graphics must be assembled by computer designers familiar with and experienced in the process of digital printing and submitting production artwork files that meet the artwork requirements of the manufacturer.

1.3.4 APPROVALS
Approvals are the responsibility of the owner, end user, designer or architect at every stage of process and production as submitted by the manufacturer to the above. Work shall not proceed without receipt of written approval authorizations.

PART II - GENERAL REQUIREMENTS

Supply Custom High Pressure Laminate panels as specified and shown on the drawings and supplemental specifications, as approved by the architect, designer or end user before fabrication.

2.1 REFERENCES
Manufacturer shall provide references from a minimum of four (4) customers with projects of similar scope and size and whom have used their service in the past two years and achieved the satisfaction of end user/architect/designer.

2.2 RELATED WORK
Related work shall be carried out by a qualified contractor specializing in such scope of work and as approved by the end user/architect/designer.

2.3 INSTALLATION
Shall be performed in a workmanlike fashion consistent with standard industry practices and per approved fabrication shop drawings related to installation of Custom High Pressure Laminate and conforming to NEMA – LD3. Prime Project Fabrication Contractor shall provide all necessary shop drawings, manufacturing specifications and installation instruction to manufacturer and respective installation resources.

2.4 INSTALLATION MATERIALS
Provide as specified and detailed in approved shop drawings provided by the Prime Project Fabrication Contractor.

2.5 QUALIFICATION
Manufacturer to illustrate a minimum of five (5) years previous experience with projects of similar size and scope.

2.6 SUBMITTALS AND SAMPLES
Custom High Pressure Laminate manufacturer must supply project specific electronic PDF proofs for content approval and minimum 8” x 10” x .060” actual material lab samples for color and finish approval from production ready digital art work and specifications as provided by end user/architect/designer.

2.7 QUALITY ASSURANCE
Quality of entire project must conform to specification and bid submittals as approved by end user/architect/designer.

Quality assurance to be provided by all printing, pressing, machining, finishing and crating of project products to be accomplished within a single stand alone manufacturing facility. Manufacturer to provide evidence of third party Accelerated Weather Testing (ASTM GS90) to confirm materials will perform to the ten (10) year warranty.

2.7.1 EXPERIENCE
Manufacturer's craftsmen shall have a minimum of two years proven experience in this field of work and be approved by the end user/architect/designer for this type of work.

2.7.2 EVIDENCE OF EXPERIENCE
Submit evidence of having successfully completed two projects of similar scope to this bid within the preceding two years.

2.7.3 SAMPLE SUBMITTAL
Provide project specific sample submittal for approval by end user/architect/designer with this bid to indicate color reference and graphic resolution capability. All technical details contained in the submittal and color management to be treated as strictly confidential.

2.8 ENVIRONMENTAL
Manufacturer must be able to demonstrate compliance with all worker's safety and environmental regulations at specific location of manufacture.

Product to be assembled utilizing only FSC certified kraft paper.
Meets LC50 Pittsburgh Protocol Toxicity Test. Equal to and no more toxic than wood or paper.

2.9 WARRANTY
Provide a written warranty issued in the name of the owner and authorized by the Manufacturer stating that the Custom High Pressure Laminate panels are warranted for exterior durability for ten (10) years against fading, delaminating or other material defect from date of substantial completion. Warranty is not to be pro rated.

2.10 ACCEPTABLE MANUFACTURER
iZone Imaging
2526 Charter Oaks Drive, Suite 100
Temple, Texas 76502
Toll Free: 888.464.9663
Tel: 254.778.0722
Fax: 254.778.0938
Izoneimaging.com

PART III - MANUFACTURING PROCESS

3.1 CUTTING AND SHAPING
All fabrication tools used in shaping and cutting of custom high pressure compact laminate panels must be carbide-tipped. Precision machining to be completed utilizing computer assisted cutting equipment with tooling, feed rates and spindle RPM as required for smooth mill finish edges. When used, saw blades must be no less that 10" diameter, hollow ground, 60-80 tooth, carbide tipped, running at a minimum of 3600 rpm. All cutting and shaping must be conducted in the same facility as all other manufacturing processes.

The finished product will be smooth on all edges, and machined within a tolerance of +/-0.060" to size specified for final installation.

3.2 SURFACE FINISH

Provide surface finish to match the Manufacturer's standard finishes of Ice, Matte or Satin and as specified in project design specifications.

Continuity of panel surfaces: Visual inspection of each panel shall reveal no visible nicks or cuts, hairline cracks, blemishes or surface defects in the surface of the finished panel.

PART IV - ART AND IMAGING

4.1 ART PREPARATION

Manufacturer shall produce panels from digital production art files as supplied by the end user/architect/designer. Designated resource supplying production ready artwork files will review files and prepared per Manufacturer's artwork requirements for digital image processing. Artwork submitted to Manufacturer shall be in required file format, (and stored on a commonly available removable storage media, such as memory stick, DVD or CD) or may be uploaded to Manufacturer's FTP site.

4.2 ART APPROVALS

All files to be reproduced in custom High Pressure Laminate shall be submitted to the end user/architect/designer in electronic PDF Proof format for content approval. An optional 8" x 10" x .060" actual material color sample submitted for color and finish approval prior to production in Custom High Pressure Laminate.

4.3 ORIGINAL ARTWORK

Original artwork provided for use in production shall not be harmed in any way (writing, cutting, etc.) and will be returned to the end user/architect/designer upon successful completion and acceptance of the project.

4.4 DIGITAL IMAGING

Digital imaging shall be printed on Manufacturer's required saturation grade substrate for inclusion in lamination process and will be of even color consistency throughout the image. All imaging shall be reproduced using UV stable pigmented inks at a resolution of no less than 300 DPI and up to 2400DPI. (Dots per Inch).

4.5 IMAGING INKS

Imaging inks used in the printing process shall be UV resistant. The imaging inks shall be pigment based to assure maximum durability, with minimal environmental impacts.

4.6 TECHNICAL PROFICIENCY

Manufacturer shall employ printing technicians proficient in industry standard imaging techniques and be able to demonstrate capabilities in photographic reproduction, including halftones, duotones, four-color process and line art.

Provide procedures and personnel trained to effectively and consistently manage equipment calibration and maintenance in order to ensure broadest color gamut and consistent color output.

4.7 COLOR REFERENCE

Pantone Solid Coated colors preferred for color reference.

Manufacturer to incorporate calibration of all systems of color management in order to provide fidelity and consistency of reproducing available color gamut.

PART V - ASTM - MECHANICAL PERFORMANCE PROPERTIES

These standards represent the minimum acceptable qualities as tested for Custom High Pressure Laminate materials.

Property	Grade Unit	Values
Weight per square foot	1/4" 1/2" 3/4"	1.81 lb/sf 3.62 lb/sf 5.40 lb/sf
Flexural Strength	MPa (psi) MD, min MPa (psi) CD, min	125 (18000) 82.7 (12000)
Impact Strength	mm (in), min	1900 (75)
Tensile Strength	MPa (psi) MD, min MPa (psi) CD, min	124 (18000) 82.7 (12000)
Modulus of Elasticity	MPa (psi) MD, min MPa (psi) CD, min	11000 (1600000) 9650 (1400000)
iZone Fire Rated (Class A) Flame Spread Smoke Development	ASTM E84	15 40
iZone Standard (Class B) Flame Spread Smoke Development	ASTM E84	60 175
Rockwell Hardness	Rating, *min	70 (E Scale)
Dimensional Stability	%MD, max %CD, max	0.3 0.7
UV Resistance	Rating, *min	No change after 2000 hours
Boiling Water Resistance	Rating, *min	No Change

PART VI - DELIVERY, TRANSPORT, AND RELATED

6.1 INSPECTION
Prior to wrapping and crating, finished panels shall be inspected for scrathces, blemishes, chips and flatness. Any panel not meeting the requirements of this specification shall be rejected and promptly replaced by Manufacturer at no additional cost.

6.2 CLEANING
All panels shall be cleaned in advance of packaging/crating.

6.3 CRATING
Custom High Pressure Laminate panels shall be packaged in a manner, which completely enclose the panels from exposure to the environment or transport equipment. The crates shall be lined with packing material to prevent movement and protection of panels within the crates. Complete documentation of shipment to be provided including but not limited to; Packing List, Cleaning & Maintenance Instructions and Warranty Document

6.4 DELIVERY
Delivery shall be the responsibility of the Manufacturer and all materials will be insured for the total value of the contents. The consignee must report any freight or other damage claims to the Manufacturer within 48 hours of receiving the crated panels.

PART VII - MAINTENANCE AND SERVICEABILITY

7.1 MAINTENANCE
Manufacturer's documentation covering the care, cleaning and maintenance of Custom High Pressure Laminate materials to be incorporated into project maintenance manuals to be provided with Manufacturer's product delivery.

PART VIII - INSTALLATION

8.1 INSTALLATION
Installation shall be the responsibility of the End User, Prime Fabrication Contractor, Designated Qualified Installation Subcontractor or under the direction of the General Contractor and as specified in the contract documents and specifications. All installation processes to be executed based on Prime Fabrication Contractor's approved shop drawings and specifications and/or in accordance with NEMA Standards Section LD 3-2005.

8.2 INSPECTION – CUSTOM HIGH PRESSURE LAMINATE PANELS
Inspect completed panels for general workmanship including clarity of images, proper alignment of images on color separations, clean backgrounds, correct colors, appropriate thickness and verify all surfaces are free from blemishes and defects prior to installation.

8.3 ADHESIVES
Apply only applicable and approved adhesives as shown in approved shop drawings, as provided by Prime Fabrication Contractor, and/or NEMA LD3. All surfaces to be cleaned and prepared per adhesives manufacturer's instructions

8.4 CLEANING
Clean completed panel surfaces with a soft cloth and any good quality glass cleaner. Abrasive cleaners should be avoided for long-term usage.

8.5 INSPECTION - INSTALLATION
Inspect installation site and coordinate installation schedule with end user/architect/designer representative.