GENERAL

CSI Master Format Section 06 60 00 — Plastic Fabrications / Architectural Foam Systems

1 SUMMARY

This section specifies requirements for custom fabricated architectural foam systems manufactured by our company, Jacksonville, Florida.

APPLICATIONS

Products are designed for:

- Commercial construction
- Institutional construction
- Hospitality construction
- Retail construction
- Residential construction

SYSTEM COMPOSITION

All systems consist of:

- Engineered foam cores — Expanded Polystyrene (EPS), Polyurethane (PU/PIR), or hybrid composite configurations
- High-performance polyurea elastomer protective coatings
- Exterior architectural finish systems

Systems included in this section:

06 60 00.01	Architectural Columns — Round, Square, Tapered, Classical Orders (Doric, Ionic, Corinthian, Tuscan, Composite)
06 60 00.02	Decorative Beams, Brackets & Corbels — Faux timber, structural-look, coffered ceiling systems
06 60 00.03	Cornices, Moldings, Trim & Fascia — Crown molding, band molding, window surrounds, door surrounds
06 60 00.04	Façade Panels & Cladding Systems — Flat, textured, profiled exterior insulated panels
06 60 00.05	Monument Signs & 3D Branding Structures — Dimensional lettering, logo structures, entry monuments
06 60 00.06	Faux Material Systems — Faux wood, faux stone, faux brick, architectural foam trim
06 60 00.07	Custom Sculptural & Artistic Elements — Themed environments, retail installations, decorative features
06 60 00.08	Structural Insulated Panel (SIP) Cores — EPS and PU foam cores for composite panel systems

Unless specifically engineered and documented by a licensed structural engineer, decorative products specified in this section are non-structural architectural elements and shall not be considered primary load-bearing components.

2 BASIS OF DESIGN

Design of all architectural foam systems specified herein is based on products manufactured and engineered by our company, Jacksonville, Florida, USA.

our company operates as:

- An engineering-driven manufacturing platform
- Over 25 years of experience
- 10,000+ completed projects

In-house capability for:

- Structural design
- CNC fabrication
- Polyurea coating
- Full project lifecycle support

Manufacturer	Our company
Headquarters	Our company
Engineering Experience	25+ years / 10,000+ projects
Production Capability	CNC hot-wire EPS cutting, precision 3D routing, high-pressure polyurea spray systems
Market Served	Commercial, institutional, hospitality, retail, residential — nationwide B2B
Delivery Capability	Nationwide; typical lead time 7–14 business days

3 RELATED SECTIONS — COORDINATION

- **03 30 00** Cast-in-Place Concrete — substrate and support structures
- **05 12 00** Structural Steel Framing — internal armatures for large-scale elements
- **06 10 00** Rough Carpentry — wood nailers, blocking, backing substrates
- **07 21 00** Thermal Insulation — coordinate where foam serves dual thermal/ architectural function
- **07 24 00** Exterior Insulation & Finish Systems (EIFS) — coordinate with façade panel systems
- **07 92 00** Joint Sealants — perimeter and joint sealing at architectural foam elements
- **09 24 00** Portland Cement Stucco — alternate finish coat over polyurea base
- **09 90 00** Painting and Coating Systems — finish coat color matching
- **10 14 00** Signage — coordinate with monument sign and 3D branding elements
- **12 36 00** Countertops — coordinate where custom foam elements integrate with millwork

4 REFERENCES & APPLICABLE STANDARDS

- ASTM C578 *Standard Specification for Rigid, Cellular Polystyrene Thermal Insulation — Types I through XV*
- ASTM D6817 *Standard Specification for Rigid Cellular Polystyrene Geofoam*
- ASTM C591 *Standard Specification for Unfaced Preformed Rigid Cellular Polyisocyanurate Thermal Insulation*
- ASTM C1029 *Standard Specification for Spray-Applied Rigid Cellular Polyurethane Thermal Insulation*
- ASTM D1621 *Standard Test Method for Compressive Properties of Rigid Cellular Plastics*
- ASTM D1623 *Standard Test Method for Tensile and Tensile Adhesion Properties of Rigid Cellular Plastics*
- ASTM C273 *Standard Test Method for Shear Properties of Sandwich Core Materials*
- ASTM D412 *Standard Test Methods for Vulcanized Rubber and Thermoplastic Elastomers — Tension*
- ASTM D2240 *Standard Test Method for Rubber Property — Durometer Hardness*
- ASTM D4541 *Standard Test Method for Pull-Off Strength of Coatings*
- ASTM D4065 *Standard Practice for Plastics — Classification — Application of Polyurea Coating Systems*
- ASTM E84 *Standard Test Method for Surface Burning Characteristics of Building Materials (Tunnel Test)*
- ASTM E90 *Standard Test Method for Laboratory Measurement of Airborne Sound Attenuation of Building Partitions*
- ASTM C423 *Standard Test Method for Sound Absorption and Sound Absorption Coefficients*
- ASTM G154 *Standard Practice for Operating Fluorescent Ultraviolet (UV) Lamp Apparatus for Exposure of Nonmetallic Materials*
- ASTM C518 *Standard Test Method for Steady-State Thermal Transmission Properties by Means of the Heat Flow Meter Apparatus*
- ASCE 7-22 *Minimum Design Loads and Associated Criteria for Buildings and Other Structures*
- IBC 2021 *International Building Code — Section 2603: Foam Plastic Insulation*
- IFC 2021 *International Fire Code*
- ICC-ES AC71 *Acceptance Criteria for Foam Plastic Insulation in Continuous Insulation Applications*
- NFPA 101 *Life Safety Code*
- FM 4474 *Approval Standard for Evaluating the Simulated Wind Uplift Resistance of Roof Assemblies*
- CSI Master Format *2016 Edition — Division 06 Wood, Plastics, and Composites*

5 PERFORMANCE REQUIREMENTS — ALL SYSTEMS

STRUCTURAL PERFORMANCE

All architectural foam systems shall be designed and fabricated to withstand applicable structural loads including:

- Self-weight
- Installation loads
- Wind-induced pressures
- Impact loads appropriate to the application and occupancy

Systems required to resist wind loads shall comply with ASCE 7-22 for the design wind speed and exposure category of the project site.

Structural calculations shall be prepared by a licensed Professional Engineer where required by the Authority Having Jurisdiction (AHJ).

WIND LOAD RESISTANCE

Exterior architectural elements shall be designed for component and cladding (C&C) wind pressures per ASCE 7-22 Chapter 30.

Attachment systems, fastener schedules, and foam core shear/compressive strength shall be verified against design wind pressures with a minimum safety factor of 3.0 per ICC-ES AC71.

FM-rated assemblies shall be provided where required by insurer or AHJ.

Refer to Part 4 — Wind Load Reference Data.

THERMAL PERFORMANCE

Where foam elements serve a thermal insulation function, R-values shall comply with the energy code requirements of the applicable jurisdiction.

- EPS Type II (1.35 pcf) provides R-4.17 per inch
- EPS Type IX (1.80 pcf) provides R-4.35 per inch
- PU closed-cell systems provide R-6.0 to R-6.5 per inch per ASTM C518 at 75°F

THERMAL PERFORMANCE

Polyurea protective coating system shall provide a continuous waterproof membrane over all exposed foam surfaces.
Coating system shall resist:

- Moisture penetration
- Freeze-thaw cycling
- UV degradation

Water vapor permeance of coating system shall be compatible with wall assembly vapor control requirements.

Coastal and high-humidity installations shall specify enhanced UV-stable exterior finish coatings.

6 SUBMITTALS

PRODUCT DATA

Manufacturer technical documentation including ***material composition, density range, fabrication process description, coating system data sheets, and installation guidelines.***

Include ***ASTM test reports*** for EPS ***(C578)***, polyurea coating ***(D412, D2240, D4541, E84)***, and thermal performance ***(C518)*** as applicable.

SHOP DRAWINGS

Project-specific shop drawings for each custom element.

Include ***plan, elevation, and section views with all dimensions; connection and attachment details; internal armature or mounting hardware; joint locations and configurations; and installation sequence.***

ENGINEERING CALCULATIONS

Where required by project specifications or AHJ: ***structural calculations by licensed PE*** verifying foam core adequacy, attachment capacity, and wind load resistance.

Include ***design wind speed, exposure category, and C&C pressure calculations per ASCE 7-22.***

ASTM E84 TEST REPORTS

Current ***ASTM E84 flame spread and smoke developed test reports*** for foam and coating system as installed, at the thickness and density specified.

SAMPLES

Finish coating samples on minimum ***6" x 6" EPS substrate,*** illustrating ***texture, color, and sheen level.*** Provide color range samples where multiple finish options are offered.

WARRANTY DOCUMENTATION

Executed ***warranty document per Section 1.10 prior to Substantial Completion.***

7 QUALITY ASSURANCE

Manufacturer shall be a firm with not less than 10 years of continuous experience fabricating custom architectural foam elements for commercial construction projects. Manufacturer shall demonstrate the following in-house capabilities:

• CNC hot-wire EPS cutting systems capable of producing complex three-dimensional profiles

• Precision multi-axis CNC routing and profiling equipment

ACOUSTIC PERFORMANCE

Where acoustic separation or sound control is required, foam systems shall be specified in conjunction with appropriate wall/floor/ceiling assemblies.

- Open-cell polyurethane spray foam provides NRC 0.70–0.95 at 2"–4" thickness

- For assemblies required to achieve STC 50 per IBC Section 1207, foam fill shall be used in conjunction with appropriate framing, gypsum wallboard, and resilient channel systems

Refer to Part 4 — Acoustic Performance Data.

DIMENSIONAL STABILITY

Foam core materials shall maintain dimensional stability under the full range of service temperatures anticipated at the project location.

- EPS materials shall comply with ASTM C578 requirements for dimensional stability

- Polyurea coating system shall accommodate thermal expansion and contraction without cracking, delamination, or loss of adhesion over the service life of the installation

IMPACT & ABRASION RESISTANCE

Polyurea coating system shall provide:

- Shore D hardness ≥ 55 per ASTM D2240

- Tensile strength of coating ≥ 2,500 psi per ASTM D412

- Elongation at break ≥ 200% per ASTM D412

- Adhesion to EPS substrate ≥ 250 psi pull-off strength per ASTM D4541

UV STABILITY

Exterior finish coating systems shall be UV-stable and shall not exhibit:

- Significant color shift

- Chalking

- Loss of gloss

under accelerated UV weathering per ASTM G154.

All foam materials shall be protected from direct UV exposure within 30 days of installation by application of appropriate finish coatings or cladding systems.

WEIGHT EFFICIENCY

Architectural foam systems shall provide weight reduction of up to 90 percent compared to equivalent stone, precast concrete, or cast stone elements, thereby reducing structural dead loads and facilitating accelerated installation.

• High-pressure plural-component polyurea spray coating systems

• In-house structural design and CAD/3D modeling capability

• Direct collaboration capability with project architects, engineers, and contractors

• Quality management system with documented inspection procedures at each production stage

• Capability to provide design modifications during production without schedule impact

• Pre-assembled delivery systems reducing field installation cost and time

8 DELIVERY, STORAGE & HANDLING

• Deliver products in manufacturer's packaging with identification labels intact. Inspect upon delivery and document any damage before accepting shipment.

• Store foam elements in a dry, sheltered location protected from precipitation, direct sunlight, and temperatures below -20°F or above 140°F. Store flat on clean, level supports. Do not stack elements in a manner that causes deformation or surface damage.

• Free product storage at our company anufacturing facility is available for clients not yet ready for installation — contact manufacturer for terms.

• Handle elements with clean gloves or padding to prevent surface damage to finish coatings. Do not drag elements on abrasive surfaces.

9 WARRANTY

our company warrants that products furnished under this section shall be free from defects in:

- materials

- fabrication

for a period of:

- 5 years from the date of Substantial Completion for standard systems

- 10 years for enhanced coating systems

against delamination of polyurea coating from EPS substrate under normal service conditions.

WARRANTY EXCLUDES DAMAGE FROM:

- improper installation

- vandalism

- impact beyond design parameters

- chemical exposure not specified

- UV degradation where finish coating is not maintained per manufacturer recommendations.

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