ADDENDUM NO. 1

TO PROSPECTIVE BIDDERS ON CONTRACT EWR-154.224A – NEWARK LIBERTY INTERNATIONAL AIRPORT – TERMINAL B EXTERIOR CURTAIN WALL GLASS UPGRADE

The following changes are hereby made in the Contract Documents for the subject Contract.

This communication should be physically annexed to back cover of the book and initialled by each bidder before submitting his bid.

In case any bidder fails to conform to these instructions, his Bid will nevertheless be construed as though this communication had been so physically annexed and initialled.

CHANGES IN THE CONTRACT BOOKLET

Page vi - Following "053100  STEEL DECK", insert the following new line: "054000 COLD-FORMED METAL FRAMING AND SHEATHING SYSTEM (INTERIOR AND EXTERIOR CONSTRUCTION)".

Page 1 - In the second line of the first paragraph, change the day and date for receipt of Bids to "Wednesday, August 14, 2019".

Page 46 - In the first line of the first paragraph of clause 32. TIME FOR COMPLETION AND DAMAGES FOR DELAY, delete "1095" and substitute therefor "900".

Page 333 - Immediately following this page, insert new pages 333A through 333K (11 pages) which are attach hereto and made a part hereof.

Page 543 - Immediately following the text of Set: HW13, insert the following new lines:

"Set: HW14

Description: Handicapped Accessible Egress Doors – Level 02

Same as Set HW8, plus

1 Actuator 916-N-BH-MA-28 US15 DM 087100
Notes: When activated, actuator can retract panic latch and start auto operator. When power is off, auto operator shall function like a regular closer.”.

Page 743 - Delete the entire page and substitute therefor the new page that is attached hereto and made a part hereof.

REVISED CONTRACT DRAWINGS

Drawings G0301, G0303, A0020, A0036, A0037, A0051, A0052, A1201, A1202, A4201, A4202, A9003, A9006, A9007, A9011, A9017, A9021, A9026, A9028, A9032, S1118, S1121, S1230, M0101, M1221, M2111, M2212, M2211, M2301, M2302, M3101, M3102, M3201, M3202, M3301, M3302, M4001, M5001, M6001, M7001, M7002, M7102, M7201, M7202, P0101, E0102, E0305, E3201, E3202, E3203, E3204, E3205, E6101, E6102, E6201, E6202, E6203, E6204, E6205, E6206, E6301, E6302, E6303, E6304, E6305, E8202, ES0104 and ES9703 have been revised as of 07/24/19. Copies of these drawings are forwarded herewith on CD. Destroy the drawings of these numbers now in your possession and substitute therefor the revised drawings.

THE PORT AUTHORITY OF NEW YORK AND NEW JERSEY

James Starace, P.E.
Chief Engineer/Director

INITIALLED BY THE BIDDER:
DIVISION 05

SECTION 054000

COLD-FORMED METAL FRAMING AND SHEATHING SYSTEM
(INTERIOR AND EXTERIOR CONSTRUCTION)

PART 1. GENERAL

1.01 SUMMARY

A. This Section specifies requirements for interior and exterior load-bearing, and exterior non-load-bearing (curtainwall) cold-formed metal framing systems, including gypsum sheathing board and accessories.

B. Interior non-load-bearing framing and gypsum board is specified in Division 9 Section on gypsum board.

1.02 REFERENCES

The following is a listing of the publications referenced in this Section:

American Iron and Steel Institute (AISI)
AISI/COS/NASPEC
AISI S100: North American Specification for the Design of Cold-Formed Steel Structural Members.
AISI/COFS/GP
AISI S200: Standard for Cold-Formed Steel Framing — General Provisions.

American Society for Testing and Materials (ASTM)
ASTM A 653 Specification for Steel Sheet, Zinc-Coated (Galvanized) or Zinc-Iron Alloy-Coated (Galvannealed) by the Hot-Dip Process.
ASTM A 780 Practice for Repair of Damaged and Uncoated Areas of Hot-Dip Galvanized Coatings.
ASTM B 117 Practice for Operating Salt Spray (Fog) Apparatus.
ASTM C 954 Specification for Steel Drill Screws for the Application of Gypsum Panel Products or Metal Plaster Bases to Steel Studs from 0.033 in. (0.84 mm) to 0.112 in. (2.84 mm) in Thickness.
ASTM C 955 Specification for Load-Bearing (Transverse and Axial) Steel Studs, Runners (Tracks), and Bracing or Bridging for Screw Application of Gypsum Panel Products and Metal Plaster Bases.
ASTM C 1007 Specification for Installation of Load Bearing (Transverse and Axial) Steel Studs and Related Accessories.
ASTM C 1177 Specification for Glass Mat Gypsum Substrate for Use as Sheathing.
ASTM C 1280 Application of Gypsum Sheathing.
ASTM C 1513 Specification for Steel Tapping Screws for Cold-Formed Steel Framing Connections.


American Welding Society, Inc. (AWS)
AWS D1.1 Structural Welding Code - Steel.
AWS D1.3 Structural Welding Code - Sheet Steel.

The Society for Protective Coatings (SSPC)

1.03 DESIGN AND PERFORMANCE REQUIREMENTS

A. General:

Items requiring design computations shall be designed by the Contractor to comply with AISI/COS/NASPEC, AISI/COS/GP, and applicable building codes. Cold formed metal framing and cladding assemblies shall meet or exceed the following design and performance requirements. Exterior assemblies shall be watertight, airtight, and capable of withstanding thermal movement and wind, seismic, and impact loads without failure of any kind.

B. Loading:

1. Wind Loads:
   a. Exterior Walls: The cold formed metal framing Work, including the exterior cladding materials, shall be designed, fabricated and installed to withstand the maximum inward and outward wind pressures as indicated on the Contract Drawings.
   b. Interior Walls: The cold formed metal framing Work, including the interior finish materials, shall be designed, fabricated and installed to withstand a maximum inward and outward wind pressure of 5 lbf/sq. ft.

2. Seismic Loads: Refer to the Contract Drawings.
   a. Furnish and install cold formed metal framing and cladding materials as required to satisfy seismic criteria.

3. Deflection Limitations:
   a. Deflections: Base calculations for the following deflections upon the combination of maximum direct wind loads, building deflections, thermal stresses, and erection tolerances.
      (1) Exterior Walls: The deflection of any framing member in a direction normal to the plane of the wall when subjected to the full code required wind loads specified above shall not exceed 1/600 of its clear span or ¼” whichever is less (inward and outward).
(2) Interior Walls: The deflection of any framing member in a direction normal to the plane of the wall when subjected to the full code required wind loads specified above shall not exceed 1/360 of its clear span.

(3) Cladding material, sealants and interior finishes shall not be included to contribute to framing member strength, stiffness or lateral stability.

(4) Cantilever Deflection: The deflection of a framing member overhanging an anchor point shall be limited to 2L/175 where L is the length of the cantilevered member.

(5) Soffit framing shall be fabricated and installed to resist its own deadloads and upward and downward wind loading with a deflection not to exceed 1/360 of the distance between supports.

(6) The net deflection of metal wall panels in a direction normal to the plane of the wall when subjected to the maximum inward and outward wind pressures shall not exceed 1/60 of the panel's short length span. Deflection shall be measured relative to horizontal and vertical support members with allowable deflection determined by the lesser dimension.

b. Do not permit any permanent deformation (set) in the metal framing Work. Permanent deformation, fastener, weld, or gasket failure, component breakage or disengagement shall not occur under wind loading equal to 1.5 times the wind loads (positive or negative). Permanent deformation shall be taken as deflection without recovery exceeding 1/1000 times span.

4. Dead Loads:

a. Limit deflections of metal members spanning door openings to 1/300. The clearance between the member and an operable door shall be no less than 1/16 inch.

C. Thermal Movements

1. Fabricate the cold formed metal framing work to accommodate for such expansion and contraction of component materials, and supporting elements, as will be caused by surface temperatures ranging from -5 to +180 deg F, without causing buckling, failure of joint sealants, cladding failures, undue stress on metal members and fasteners, weld failures, failure of doors or other operating units to function properly, reduction of performance, and other detrimental effects.

a. Dimensions shown on Contract Drawings are based on an assumed design temperature of +70 deg F. Fabrication and erection procedures shall take into account the ambient temperature range at the time of the respective operations.

D. Building Frame Movement

Design, fabricate and install cold formed metal framing to withstand building movements including thermal movements, loading deflections, shrinkage, creep and similar movements. Thermal movements shall be as specified above.

E. Fire-Resistance Rating

Where assemblies with fire-resistance ratings are shown on the Contract Drawings, provide materials and installations which are identical to those of applicable assemblies tested in accordance with ASTM E 119 by a fire testing agency acceptable to the Engineer.
1.04 QUALITY ASSURANCE

A. When required by Appendix "A", submit design calculations for metal framing, signed and sealed by a professional engineer licensed in the state in which Work is to be performed, indicating compliance with the design and performance requirements specified in 1.03 A.

B. Testing Agency Qualifications

An independent testing agency with the experience and capability to conduct the testing indicated without delaying the Work, as documented in accordance with ASTM E 699.

C. Engineer Qualifications

A professional engineer who is legally qualified to practice in the jurisdiction where the Work is to be performed and who is experienced in providing engineering services of the type and complexity required for Work of this Contract.

D. Welding Standards

Comply with applicable provisions of AWS D1.1 Structural Welding Code - Steel and AWS D1.3 Structural Welding Code - Sheet Steel.

1. Certify that each welder has satisfactorily passed AWS qualification tests for welding processes involved and if pertinent, has undergone recertification.

E. Single Source Responsibility

Obtain cold-formed metal framing from a single manufacturer and obtain gypsum sheathing board products from a single manufacturer.

1.05 DELIVERY, STORAGE, AND HANDLING

A. Deliver metal framing materials to construction site in the manufacturer's unopened containers or bundles, fully identified with name, brand, type and grade. Protect metal framing from corrosion, deformation and other damage. Store off ground in a dry ventilated space or protect with suitable waterproof coverings.

B. Deliver gypsum sheathing board materials in the manufacturer's original packaging, legibly identified. Store flat and level, off ground and under cover, with provision for air circulation. Handle to prevent breakage and damage to board edges.

1.06 SUBMITTALS

See Appendix "A" for submittal requirements.

PART 2. PRODUCTS

2.01 MANUFACTURERS
Subject to compliance with requirements of this Section, furnish and install products by one of the following, or approved equal:

A. Cold-Formed Metal Framing

Clark Steel Framing Systems, Middletown, OH
Deitrich Metal Framing, Inc., div. of Worthington Industries Co., Pittsburgh, PA
MarinolWARE, South Plainfield, NJ
Super Stud Building Products, Inc., Astoria, NY

B. Gypsum Sheathing Board

BPB America Inc., Tampa, FL
G-P Gypsum Corp., Atlanta, GA
United States Gypsum Co., Chicago, IL

2.02 MATERIALS

A. Metal Framing Materials

1. Minimum base-metal steel thickness of 0.0538 inch (16 gage) and heavier components: Structural quality steel sheet with a minimum yield point of 40,000 psi or greater in conformance with structural design, complying with ASTM A 653.

2. Studs

Manufacturer's standard C-shape or punched channel steel studs of type, size, shape and thickness shown on the Contract Drawings with 1.675 inch flange width on C-shape and 1.365 inch flange width on punched channel, unless otherwise shown.

3. Track

Same thickness as corresponding steel studs, sized to match, solid web. Track style, size and thickness for joists shall be as recommended by the joist manufacturer.

4. Joists

Manufacturer's standard C-shape sections of size and thickness as shown on the Contract Drawings.

5. Mark components to identify manufacturer, thickness and yield strength.

6. Finish

Galvanized finish on system components, including stud, track, joist, bridging and framing accessories, complying with ASTM A 653 for minimum G60 coating.

B. Framing Accessories

1. Bracing, blocking, bridging, clips and gusset plates shall be as shown on the Contract Drawings or as required by design using manufacturer's standard shapes. Hot-dip galvanize per ASTM A 123.

2. Fastenings: Type or combination of types per approved framing design and connection details.


   b. Anchor bolts, nuts and washers: Hot-dip galvanized.
3. Anchorage devices: Drilled expansion bolts.

4. Galvanizing Repair Paint
   SSPC-Paint 20, with dry film containing minimum of 94 percent zinc dust by weight.
   a. "Cold Galvanizing Compound", manufactured by Z.R.C. Worldwide, Quincy, MA, or approved equal.

C. Exterior Sheathing System

1. Gypsum Sheathing Board: Regular, 5/8-inch thick, or type and thickness as shown on the Contract Drawings, square edge, for exterior use with water resistant treated core, eligible for 6 month in-place manufacturer warranty against damage due to weather exposure. Board shall be resistant to wicking, moisture penetration, and delamination caused by surface water exposure and resistant to warping, rippling, buckling, and sagging, conforming to the following:
   c. Products: Subject to compliance with requirements of this Specifications Section, furnish and install one of the following products or approved equal:

      DensGlass Gold Exterior Guard; G-P Gypsum Corp., Atlanta, GA
      GlasRoc Sheathing; BPB America Inc., Tampa, FL
      Fiberock Sheathing with Aqua-Tough; United States Gypsum Co., Chicago, IL

      (1) Where fire rated Work is shown on the Contract Drawings: Type X, 5/8-inch thick.

2. Gypsum or other board product for interior walls and partitions shall be as specified in Division 9 Section on gypsum board.

3. Sheathing Fasteners

   ASTM C 954, steel drill screws, Type S-12 fluted tip, minimum 1-1/4 inches long, with organic-polymer coating or other corrosion-protective coating having a salt-spray resistance of more than 700 hours in accordance with ASTM B 117.

4. Sheathing Joint Treatment

   Sheathing tape or sealant as recommended by the gypsum sheathing board manufacturer, specifically designed and manufactured to seal joints in sheathing against water and air infiltration. Tape shall be formulated with an adhesive that permanently bonds to sheathing substrates.

5. Felt (Building Wrap)

   15 lb. asphalt saturated rag felt, non-perforated, ASTM D 226, Type I. Screws and washers for installation of felt shall be corrosion resistant, sized to penetrate sheathing and steel framing by at least three exposed threads.

6. Vapor Retarder

   Reinforced polyethylene vapor retarder with manufacturer recommended joint tape and fasteners where shown on the Contract Drawings, or vapor retarder type as otherwise shown.

2.03 FABRICATION
A. General
1. Studs, track, bracing and bridging shall be manufactured per ASTM C 955.
2. System components may be prefabricated into panels prior to erection. Fabricate panels plumb, square, true to line and braced against racking with joints welded. Perform lifting of prefabricated panels in a manner to prevent damage or distortion in any member.

B. Fastenings

Attach similar components by welding. Attach dissimilar components by welding, bolting or screw fasteners, as recommended by the manufacturer.

C. Fabrication Tolerances

Fabricate assemblies to a maximum allowable tolerance variation from plumb, level and true to line of 1/8 inch in 10 feet (1.960) and as follows:
1. Spacing: Space individual framing members no more than plus or minus 1/8 inch from plan location. Cumulative error shall not exceed minimum fastening requirements of sheathing or other finishing materials.
2. Squareness: Maximum out-of-square tolerance of 1/8 inch.

PART 3. EXECUTION

3.01 EXAMINATION

Examine supporting substrates and abutting structural framing for compliance with requirements for installation tolerances and other conditions affecting performance of cold-formed metal framing. Do not proceed with installation until unsatisfactory conditions have been corrected.

3.02 PREPARATION

A. Coordinate framing installation with sprayed-on fireproofing application, if any, to avoid disturbing or damaging fireproofing material.

B. Coordinate sheathing installation with flashing and joint-sealant installation so these materials are installed in sequence and manner that prevent exterior moisture from passing through completed exterior wall assembly.

3.03 INSTALLATION

A. General
1. Install cold-formed metal framing in accordance with the more stringent of AISI's Standard for Cold-Formed Steel Framing – General Provisions and manufacturer's written instructions.
2. Fastening type, size, spacing and penetration shall be as detailed in accordance with approved shop drawings.
3. As framing Work progresses, fill voids that will become inaccessible with insulation, sound attenuation or other materials shown on the Contract Drawings.
4. Wire tyng of framing components and splicing of axially loaded studs is not permitted.
5. Cut framing members by sawing or shearing; torch cutting is not permitted.
B. Runner Track

Install continuous tracks sized to match studs. Align tracks accurately to layout at base and tops of studs. Securely anchor tracks to supporting structure at corners and ends. Fasten as recommended by stud manufacturer for type of construction involved, except do not exceed 24 inches on center spacing for nail or power-driven fasteners, or 16 inches on center for other types of attachment.

1. Ensure complete, uniform and level bearing support for the bottom track at each stud location. If not provided, install full size load-bearing, high-density plastic shims below bottom track at stud locations as needed, or set bottom track in nonmetallic, nonshrink grout.

2. At intersecting or abutting track joints, securely anchor abutting pieces of track to a common structural element or splice pieces of track together.

3. Secure studs to top and bottom runner tracks by either welding or screw fastening at both flanges.

C. Steel Studs

1. Place and secure steel studs in accordance with ASTM C 1007.

2. Do not start placement of steel studs until supporting Work is in place and secure. Install temporary bridging, connections and anchors as required to ensure lateral stability during construction.

3. Set studs plumb, spaced 16 inches on center, unless otherwise shown on the Contract Drawings, without splices between connection points.

4. Install horizontal stiffeners in stud system, spaced not more than 48 inches on center vertically, or as otherwise shown on the Contract Drawings. Weld at each intersection.

D. Openings

1. Framed wall openings shall include a header and either multiple or heavier studs at each side of the openings, in accordance with approved shop drawings.

2. Install tracks and jack studs above and below wall openings. Anchor tracks to jamb studs with stud shoes or by welding. Space jack studs same as full-height wall studs. Secure stud system to wall opening frame as shown on the Contract Drawings.

3. Frame floor openings that are larger than the joist spacing.

E. Joints

Frame both sides of expansion and control joints with a separate stud where required for wall system. Do not bridge joints with components of stud system.

F. Joists

1. Install continuous rim track sized to match joists.

2. Install joists plumb, fastened to both flanges of track, complete with bracing and reinforcing as shown on approved shop drawings. Ensure minimum 1-1/2 inch end bearing.

3. Reinforce ends with end clips, steel hangers, steel angle clips, steel stud section or as otherwise recommended by joist manufacturer.

4. Where required, reinforce joists at interior supports with single short length of joist section located directly over interior support, snap-on shoe, 30 percent side-piece lapped reinforcement or other method recommended by joist manufacturer.
5. Secure joists to interior support systems to prevent lateral movement of bottom flange of joist.

G. Exterior Sheathing System

Apply gypsum sheathing board where shown on the Contract Drawings, in accordance with ASTM C 1280 and the following:

1. Fasten sheathing to metal framing with screws placed 3/8 inch from board edges and ends. Space fasteners 8 inches on center or tighter as recommended by sheathing manufacturer, or as required for fire-resistance rated application. Fasteners heads shall bear tightly against the sheathing face, without cutting in or breaking the sheathing face or fracturing the sheathing core.

2. Do not bridge control or expansion joints with sheathing.

3. Seal sheathing joints with sheathing tape or sealant per sheathing manufacturer's instructions, except where sheathing is overlaid with an air barrier, vapor retarder or a full layer of insulation.

4. Protection of Sheathing
   a. Instead of sheathing tape or sealant and where shown on the Contract Drawings or required by code, apply felt to sheathing with corrosion resistant screws and washers spaced as recommended by gypsum sheathing board manufacturer. Lap felt 2 inches horizontally, shingle fashion, and 8 inches at end laps. Install felts smooth, without bulges, free of buckling, but not stretched tight.
   b. For slanted wall applications, if any: After sheathing is in place, apply felt to slanted walls with corrosion resistant screws and washers spaced as recommended by gypsum sheathing board manufacturer, installed per 3.03 G.4.a.
   c. Temporary protection for exposed wall ends: Apply felt as above at wall ends and other locations as required to temporarily protect cavity from water infiltration.

3.04 ADJUSTING

A. Field Painting: Touch up protective coatings damaged during welding, handling and installation. Comply with ASTM A 780 and use galvanizing repair paint for galvanized surfaces.

END OF SECTION
SECTION 054000
COLD-FORMED METAL FRAMING AND SHEATHING SYSTEM
(INTERIOR AND EXTERIOR CONSTRUCTION)

APPENDIX "A"

SUBMITTALS
Submit the following in accordance with the requirements of "Shop Drawings, Catalog Cuts and Samples" of Division 01 - GENERAL PROVISIONS:

Shop Drawings
054000A01 1. For special components and installations not fully dimensioned or detailed in the manufacturer's product data.
2. Include placing drawings for framing members showing size and thickness designations, number, type, location and spacing. Indicate welds, type and location of mechanical fasteners, anchorage, connections, supplemental strapping, bracing, bridging, reinforcing, splices, accessories and details required for complete installation.

Product Data
054000D01 Manufacturer's product information and installation instructions for each item of steel framing system, gypsum sheathing board and accessories.

Certificates
054000E01 1. Mill certificates signed by manufacturer of cold-formed metal framing certifying that its products comply with material requirements, including uncoated steel thickness, yield strength, tensile strength, total elongation and galvanized coating thickness.
a. Or in lieu of mill certificates, submit test reports from a qualified independent testing agency evidencing compliance with material requirements.

Construction and Installation Procedures
054000G01 For prefabricated (panelized) framing installations, submit construction sequencing plan.

Calculations
054000H01 Submit calculations for loads and stresses of metal framing or trusses, sealed by a professional engineer registered in the state where the Work is to be erected.
Qualifications
054000K01

1. Testing Agency: Submit qualifications of testing agency.

2. Professional Engineer: Demonstrate capabilities and experience. Include list of completed projects with project names, addresses, names of architects and owners.


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