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EFF	TITLE VAB SIDING SPECIFICATION	VEN CODE
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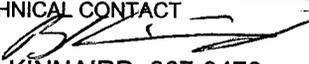
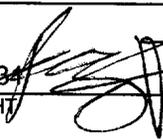
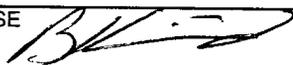
DOCUMENTS

I#	PREF	DOCUMENT NUMBER	ISSUE	SIZE	SHTS	B/L NO.	SS	MODEL NUMBER	WUC
1	DR	79K36086	NEW	F	4	394.00	20	K61-0810	20FSRV0000
2	SP	79K36159	NEW	A	12	394.00	20	K61-0810	20FSRV0000
3	SW	79K36086	NEW	M	1	394.00	20	K61-0810	20FSRV0000
4	SW	79K36159	NEW	M	1	394.00	20	K61-0810	20FSRV0000

TECHNICAL REMARKS

Drawings and specifications for incorporation in VAB siding refurbishment projects.

APPROVALS

TECHNICAL CONTACT  B. KINNAIRD, 867-3476	MAIL CODE TA-D2-A	DATE 10-3-03	R&QA	MAIL CODE	DATE
TECHNICAL  P. YU, 867-7634	MAIL CODE TA-D2	DATE 10-3-03	OTHER		
SPACE AND WEIGHT N/A			JOINT RELEASE		
PROCUREMENT PKG.			RELEASE  B. KINNAIRD	TA-D2-A	10-3-03

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APPLICATION		PART NO.	MF	REVISIONS			
NEXT ASSY	USED ON			SYM	DESCRIPTION	DATE	APPROVAL

TECHNICAL SPECIFICATION FOR DRAWING 79K36086



Reynolds, Smith and Hills
Merritt Island, Florida
Architecture - Engineering and Planning

UNLESS OTHERWISE SPECIFIED	ORIGINAL DATE OF DRAWING	VAB SIDING SPECIFICATIONS	JOHN F. KENNEDY SPACE CENTER, NASA	
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KSC FORM 21-2C (REV. 3/76)

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07400 VAB SIDING PANELS

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DIVISION 07 - THERMAL AND MOISTURE PROTECTION

SECTION 07400

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SECTION 07400

VAB SIDING PANELS

PART 1 GENERAL

1.1 REFERENCES

The publications listed below form a part of this section to the extent referenced:

ALUMINUM ASSOCIATION (AA)

AA ASD1 (1993; 11th Ed) Aluminum Standards and Data

AMERICAN NATIONAL STANDARDS INSTITUTE

ANSI B18.2.1 Hex Flange Head Bolts

ANSI B18.6.4 Slotted and Recessed Head Tapping Screws

ANSI B18.22.1 Plain Washers

ANSI B18.23.1 Beveled Washers

ASTM INTERNATIONAL (ASTM)

ASTM A 123/A 123M (2002) Standard Specification for Zinc (Hot-Dip Galvanized) Coatings on Iron and Steel Products

ASTM A 153 (2001) Specification for Zinc Coating (Hot-dip) on Steel

ASTM A 513 (2000) Specification for Electric Welding Tubing

ASTM A 653 (2000) Specification for Steel Sheet, Zinc Coated (Galvanized)

ASTM B 209 (2001) Standard Specification for Aluminum and Aluminum-Alloy Sheet and Plate

ASTM C 612 (2000) Specification for Mineral Fiber Insulation

ASTM D 2244 (2002) Standard Practice for Calculating Color Tolerances and Color Differences

ASTM D 4214 (1998) Evaluating the Degree of Chalking of Exterior Paint Films

ASTM F 593 (2001) Specification for Stainless Steel Bolts

ASTM F 594 (2001) Specification for Stainless Steel Nuts

1.2 PERFORMANCE REQUIREMENTS

1.2.1 Properties of Sections

Properties of siding sections shall be in accordance with ASTM B 209.

1.2.2 Allowable Design Stress, Deflection, and Loads

Allowable design stress, deflection, and loads for the metal siding shall be as follows:

Deflection of siding shall not exceed 1/180 under the indicated total dead and live load.

Resistance to wind pressure loading shall be not less than +95/-150 psf (inward/outward) for exterior metal siding.

1.3 SUBMITTALS

The following shall be submitted in accordance with Section 01330, "Submittal Procedures," in sufficient detail to show full compliance with the specification:

SD-02 Shop Drawings

Fabrication Drawings for siding units shall be in accordance with paragraph entitled, "General Information," of this section.

Aluminum Siding
Steel Liner Panels

SD-03 Product Data

Manufacturer's catalog data shall be submitted for the following items:

Fasteners
Insulation
Caulking & Sealants
Coatings
Dissimilar Metal Insulators

SD-04 Samples

Contractor shall submit three pieces each of the following samples:

Aluminum Siding (3 ribs wide x 12" long)
Fasteners
Dissimilar Metals Insulators

Contractor shall submit three color samples, approximately 4 by 4 inches.

SD-07 Certificates

Certificates shall be submitted for the following items showing conformance with referenced standards contained in this section.

Aluminum Siding Alloy
Aluminum Siding Coatings
Steel Liner Panel
Steel Liner Panel Galvanizing
Fasteners

1.4 DELIVERY, HANDLING, AND STORAGE

Metal siding components and assemblies shall be carefully handled at all times to prevent damage to the surfaces, edges, and ends. Contractor shall be responsible for arrangement with the manufacturer for adequate packaging and protection during shipment and storage. Upon arrival at the job site, the components and assemblies shall be checked for damage, dampness, and blemishes.

Components and Assemblies not immediately used in the work shall be stored and protected in a covered, dry location that provides good air circulation free from effects of moisture and other corrosive environments. Components and Assemblies found with damage or stain shall not be used in the work.

1.5 GENERAL INFORMATION

Fabrication Drawings for siding units shall indicate material, thickness, width and length, and any special cuts.

PART 2 PRODUCTS

2.1 GENERAL

All fastener material shall be ASTM F 593, Type 304 or 305, stainless steel unless otherwise specified. The use of Type 303 stainless steel is disallowed on this project.

2.2 ALUMINUM MATERIALS

2.2.1 Aluminum Siding- Item #1 (See Bill of Materials of Drawing Sheet 1)

Panel manufacturer shall have a minimum of ten (10) years of experience in manufacturing exposed fastener siding panels.

Aluminum siding shall be continuous, roll-formed sheets, Alloy 3004-H36, with a minimum ultimate tensile strength of 35,000 pounds per square inch (psi) and a minimum yield strength of 28,000 psi, and shall conform to ASTM B 209 and AA ASD1. The siding shall have a factory applied coating of polyvinylidene fluoride (PVDF), 2.0 mils dry film thickness to both sides of panel equal to Kynar 500/Hylar 5000 finish system.

Finish of sheets shall be manufacturer's standard stucco embossed pattern. The color of the panel coating shall be determined by the Contracting Officer.

Sheets shall be V-beam aluminum, 6.33-inch pitch by 2.34-inch depth, 0.032 inch or 0.040 inch thick as required by the construction drawings.

See the construction drawings for the panel dimensions.

2.3 STEEL SHEET MATERIALS

2.3.1 Steel Liner Panels - Item #2

Interior liner panels shall be flat steel sheet per ASTM A 653, Grade 33, 20 gauge thickness, hot-dipped galvanized in accordance with ASTM A 653, G165. See the construction drawings for the panel dimensions.

2.4 SUBGIRTS - Item #4

Subgirts shall be electrical resistance welded steel tubes conforming to ASTM A 513, hot-dip galvanized in accordance with ASTM A 123/A 123M, Grade 85.

Subgirts shall be 1-1/2" x 1-1/2", having a minimum uncoated wall thickness of 0.083 inch.

2.5 FASTENERS

2.5.1 General

Fastener materials shall be furnished as specified below. Any deviation shall be approved by the Contracting Officer. Type 303 stainless steel material is not acceptable for these fasteners.

2.5.2 Hex Flange Head Bolt - Item #7 (for attachment of siding assemblies to main structural girts)

Hex Flange Head, 3/8" x 3-1/2" long, per ANSI B18.2.1, ASTM F 593, Type 304 or 305, Condition A, UNC class 2A threads.

2.5.3 Self-Tapping Screw - Item #6 (for attachment of siding assemblies to the main structural girts)

Screw, self-tapping, 1/4"-14 x 3" long, per ANSI B18.6.4, hex flange head, blunt tip, UNF threads, 1-1/2" long threads, Type 304 or 305, equal to HILTI HH 304 SS BPTW.

2.5.4 Self-Tapping Screw - Item #14 (for attachment of siding to subgirts)

Screw, 1/4" x 5/8", split point, self-drilling, self-tapping, Type 304 or 305, hex flange head with Teflon washer.

2.5.5 Self-Tapping Screw - Item #12 (for liner panel attachment to the subgirt)

Screw, #8 x 1/2", split point, self drilling, self-tapping, 18-8 Stainless Steel, flat Phillips head, countersunk type.

2.5.6 Side Lap Screw - Item #5 (for siding overlap at corrugation crown)

Screw, #12-14 x 5/8" long, Type AB, hex flange head with bonded EPDM rubber seal, self drilling, 2024-T4 aluminum.

2.5.7 Lock Nut - Item #8

Lock nuts, 3/8" hex flange head with bonded rubber seal, ASTM F 594, Type 304 or 305, UNC Class 2A threads, with nylon insert locking feature.

2.5.8 Retaining Nut - Item #13

Retaining nut, 3/8" bolt diameter, nylon material, special shaped center for gripping shank and screw threads, 1/16" thick equal to McMaster Carr #91755A117.

2.5.9 Insulating Washer - Item #9

Washer, 1-1/8" OD X 7/16" ID for 3/8" carriage bolts and 1-1/8" OD x 5/16" ID for 1/4" fasteners, Type 304 stainless steel, 3/64" thick, with 1/16" thick Teflon bonded to one side of washer equal to Phoenix Part Nos. 118716 and 118516, Phoenix Specialty Co., Bamberg, SC (1-800-378-3884).

2.5.10 Plain Washer - Item #16

Plain washer, 3/8" standard "W" size, 0.083" thickness, Type 304 stainless steel, per ANSI B18.22.1.

2.5.11 Beveled Washer - Item #15

Beveled washer, 3/8" bolt diameter, ANSI B18.23.1, Type B, Hot dipped galvanized to ASTM A 153, G90.

2.5.12 Insulating Washer/Sleeve - Item #17

Insulating washer/sleeve, teflon material, with integral flat head washer and tube shank, 0.379" ID x 0.419" OD x 1-1/2" long for 3/8" bolts and 0.252" ID x 0.292" OD x 1-1/2" long for 1/4" bolts, equal to Nytlite Corp., S. Plainfield, NJ.

2.5.13 Insulating Washer - Item #18

Insulating washer, teflon material, 0.260" ID x 0.545" OD x 0.260" thick for 1/4" x 5/8" long self-tapping screw.

2.6 SEALANTS

2.6.1 Sealant Type - Item #19 (Aluminum Siding Overlaps)

Sealants tape shall be Butyl rubber 1/8" thick x 1/2" wide, 100% solid preformed synthetic polymer based adhesive complying with AAMA 804.1, 806.1 and 807.3 with removable backing, color gray, temperature range -60 to +212 degrees F equal to Moreau Polysul Tape, Moreau Co., Winston-Salem, NC 27127 (336) 764-5232.

2.6.2 Sealant - Item #10 (Liner Panel Interlock)

Sealant, 1/8" x 5/8" bead, butyl rubber sealant, single component, a non-drying, non-skimming sealant for bedding and sealing panels, sheets and other joints.

2.7 INSULATION - Item #3

Insulation shall be 1-1/2 inches thick, semi-rigid mineral fiber, conforming to ASTM C 612, Type IA, Class A, without facing, with density not greater than 3.0 pounds per cubic foot and thermal conductivity (k) not greater than 0.26 BTU IN/HR FT² degree F at mean temperature of 75 degree F equal to Owens Corning SCR Board, Owens Corning, Toledo, OH.

2.8 ADHESIVE TAPE - Item #11

Adhesive tape, 2" wide, closed cell polyethylene, white 63 mils thick, acrylic adhesive, temperature range -20 to +158 degrees F equal to McMaster Carr #7598A58.

PART 3 EXECUTION

3.1 INSTALLATION

Siding installer shall have a minimum of two (2) years experience in the installation of exposed fastener siding and show evidence of successful completion of at least three (3) projects of similar size, scope and complexity.

Siding shall be erected in accordance with the approved erection drawings, the printed instructions and safety precautions of the manufacturer.

Siding shall not be subjected to overloading, abuse, or undue impact. Bent, chipped, or defective sheets shall not be applied.

Siding shall be erected true and plumb and in exact alignment with the horizontal and vertical edges of the building, securely anchored, and with the indicated rake, eave, and curb overhang.

Siding sheets shall be installed with corrugations vertical.

Separate aluminum from contacting dissimilar metals with insulating tape, Teflon or nylon insulating material.

End laps of exterior siding sheets shall be not less than 3-5/8 inches; the side laps of external siding sheets shall be not less than one and one-half corrugations for V-beam and ribbed corrugated sheets.

3.2 FASTENING SYSTEM

Fastening system shall consist of exposed fasteners of materials and spacing as specified.

3.2.1 Torque Requirement

The torque requirements for installation of the siding fasteners shall be determined by a performance test conducted by the construction contractor and witnessed by Contracting Officer Representatives.

All fasteners shall be installed with the torque required to compress the sealing components of the assemblies for a water tight, snug fit without bending, dimpling, stripping out threaded engagements or cupping of washers or siding.

The performance test shall demonstrate the torque setting for each type and size fastener used on assembly of a typical panel including attachment of the assembly to the main structural girts.

The Contractor shall use a torque setting and torque limiting tool with visual indication of the torque value utilized for each type fastener (Item Nos. 5, 6, 7/8, 12 and 14).

The 1/4" x 3" long self-tapping screw Item #6 shall be installed into

0.228" diameter pre-drilled holes using a wax stick to provide a uniform torquing action.

Upon approval by the Contracting Officer the established torque settings and installation procedures shall be utilized as standard for fabrication and installation of all siding.

3.2.2 Metal Siding System

Aluminum siding shall be attached with fasteners of a length to penetrate the support member as shown on the siding panel assembly drawings.

V-beam sheet fasteners shall be spaced at intervals shown on the drawings. Side lap fasteners shall be spaced at not more than 12 inches on center.

End laps of siding sheets shall be not less than 3-5/8 inches. Side laps shall be two crowns and one valley overlap as shown on the drawings.

Interlocking side joints shall be factory calked. Overlap joints shall be sealed with a continuous bead of the specified joint sealant.

Subgirts shall be installed at indicated spacing but not more than 6 feet 4 inches on center and secured through the interior sheet into building steel girt supports with fasteners spaced as shown on the drawings.

Insulation shall be placed against the inner sheet and supported on subgirt, butting each insulation board tightly together.

Exterior sheets shall be fastened to subgirts with exposed fasteners at the specified spacing.

3.3 BONDING AND GROUNDING

See Section 16050 for bonding and grounding requirements for all siding panels.

3.4 DISSIMILAR METALS

Dissimilar metals shall be insulated from each other by insulating tape, nylon insulator material or other approved system.

3.5 JOINT SEALANTS

Joints shall be made weathertight. End joints of metal siding, flashing at corners, ridges, eaves, rakes, curbs, and openings in walls shall be sealed with the specified joint sealant.

Sealing beads shall be continuous at all horizontal and vertical joints and applied to ensure a weathertight joint.

3.6 ACCEPTANCE PROVISIONS

3.6.1 Erection Tolerances

Metal siding shall be erected straight and true with plumb vertical lines correctly lapped and secured. Horizontal lines shall not vary more than 1/8 inch in 10 feet.

3.6.2 Repairs to Finish

The siding manufacturer shall submit procedures and descriptions of material required for repair to minor scratches, abrasions and blemishes to the siding coating system.

Scratches, abrasions, and minor surface defects of finish shall be repaired with the specified repair materials. Finished repaired surfaces shall be uniform and free from variations of color and surface texture.

Repaired metal surfaces that are not acceptable to the Contracting Officer shall be immediately removed and replaced with new material.

Panels that indicate color changes, fading, or surface degradation, determined by visual examination shall be removed and replaced with new panels at no expense to the Government.

3.6.3 Warranties

The aluminum siding coating system shall be warranted for a period of 20 years from date of installation covering chalking, cracking, blistering, flaking and fading. The coating shall not chalk in excess of a numerical rating of 8 for twenty years when measured in accordance with the Standard Procedures in ASTM D 4214. The coating shall not fade or change color for twenty years in excess of 5 NBS units when measured in accordance with ASTM D 2244. Defects in materials, workmanship and appearance after exposure to the elements of Florida sunlight and sea-coast environment shall be repaired or replaced by the siding manufacturer at no expense to the government.

-- End of Section --