



STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION

PAT MCCRORY
GOVERNOR

ANTHONY J. TATA
SECRETARY

March 11, 2014

Addendum No. 3

RE: Contract ID C203357

WBS # 41188.3.FS1

F. A. # IMS-085-1(106)3

Gaston County (I-4928)

I-85 NBL Weigh Station From SR-1302 (Crowders Mountain Road)

To SR-1307 (Edgewood Road)

March 18, 2014 Letting (Advertisement extended from the February 18, 2014 Letting)

To Whom It May Concern:

This project was originally scheduled for a February 18, 2014 bid opening. It was decided to extend the advertisement and open bids on **Tuesday, March 18, 2014 at 2:00 PM.**

Reference is made to the plans and proposal furnished to you on this project.

The following revisions have been made to the **Roadway plans**:

Sheet No.	Revisions
Title Sheet	Revised letting date
1-A	Revised to reflect the addition of new Survey Control sheet and Building Utility Sheets U1 and U2
1-C	Revised to reflect the final Survey Control Data
1-D	Replaced to include additional Survey Control information
1-E	New Sheet Added to include the Centerline Coordinate List (former Sheet No. 1-D was renumbered as Sheet No. 1-E)
T2 and T3	Revised to add values to Energy Summary Section
A5	Modified Window Schedule
A9	Revised Inspection Pit edge angle (Refer to Detail B6/A9)
S2	Revised to include Gable wall bracing
S4	Revised to specify screw connections at each truss
S7	Revise detail 3/S7 Inspection Pit Edge Angle
E1	Revise General Note #3
U1 and U2	New Sheets to Provided sanitary sewer connections from buildings to existing sanitary sewer manhole (staple after Sheet No. E5 in your plans)

Please void the existing above listed plans and staple the revised above listed plans thereto.

MAILING ADDRESS:
NC DEPARTMENT OF TRANSPORTATION
CONTRACT STANDARDS AND DEVELOPMENT UNIT
1591 MAIL SERVICE CENTER
RALEIGH NC 27699-1591

TELEPHONE: 919-707-6900
FAX: 919-250-4119
WEBSITE: www.ncdot.gov

LOCATION:
CENTURY CENTER COMPLEX
ENTRANCE B-2
1020 BIRCH RIDGE DRIVE
RALEIGH NC 27610

The following revision has been made to the Culvert plans:

The letting date on the Title Sheet has been revised. Please void the Title Sheet in your plans and staple the revised Title Sheet thereto.

Reference is made to the proposal furnished to you on this project.

The bid opening date on the proposal cover sheet has been revised from February 18, 2014 to **March 18, 2014**. Please void your proposal cover sheet and staple the revised proposal cover sheet thereto.

On Page No. 1 the availability date and completion date was revised within the project special provisions entitled "Contract Time and Liquidated Damages" and "Intermediate Contract Time Number 1 and Liquidated Damages". Please void Page No. 1 in your proposal and staple the revised Page No. 1 thereto.

On Page No. 6, the base index price for diesel fuel has been updated within the project special provision entitled "Fuel Price Adjustment". On Page No. 7 the progress percentages have been revised within the project special provision entitled "Schedule of Estimated Completion Progress". Please void Page Nos. 6 and 7 in your proposal and staple the revised Page Nos. 6 and 7 thereto.

On Page No. 37 the base price index for asphalt binder has been revised within the project special provision entitled "Price Adjustment-Asphalt Binder For Plant Mix". Please void Page No. 37 in your proposal and staple the revised Page No. 37 thereto.

New Page Nos. 432A, 432B and 432C have been added to include the project special provision entitled "Fluid-Applied Waterproofing". Please staple New Page Nos. 432A, 432B and 432C after Page No. 432 in your proposal.

On Page No. 455 paragraph 2.02E was added for non-thermal sliding windows. Please void Page Nos. 455, 456 and 457 in your proposal and staple revised Page Nos. 455, 456 and 457 thereto.

On Page Nos. 463 and 464 section 2.02 "Glass Types" has been revised. Please void Page Nos. 463 and 464 in your proposal and staple the revised Page Nos. 463 and 464 thereto.

On Page No. 504 paragraphs "I. Thermal Blocks" and "J. Snow Guards" were added to section 2.04 "Materials-Walls and Roof". Please void Page No. 504 in your proposal and staple the revised Page No. 504 thereto.

On Page No. 587 paragraph B. under section 3.14 "Final Inspection" has been revised. Please void Page No. 587 in your proposal and staple the revised Page No. 587 thereto.

Please delete the EBS file you previously downloaded for the February 18, 2014 letting and download the new EBS file listed for the March 18, 2014 letting. Bid Express will not accept your bid unless the new EBS file associated with the March 18, 2014 letting is used.

Sincerely,



R. A. Garris, PE
Contract Officer

RAG/jag
Attachments

cc: Mr. Ron Hancock, PE
Mr. Reuben Chandler, PE (Acting)
Ms. D. M. Barbour, PE
Mr. Rodger Rochelle, PE
Mr. R.E. Davenport, PE
Project File (2)

Mr. Ray Arnold, PE
Ms. Natalie Roskam, PE
Mr. Chris Haire, PE
Mr. Ronnie Higgins
Ms. Marsha Sample
Ms. Lori Strickland

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH, N.C.

PROPOSAL

Revised 3-11-14

DATE AND TIME OF BID OPENING: **MARCH 18, 2014 AT 2:00 PM**

CONTRACT ID C203357
WBS 41188.3.FS1

FEDERAL-AID NO. IMS-085-1(106)3
COUNTY GASTON
T.I.P. NO. I-4928
MILES 2.244
ROUTE NO. I 85
LOCATION I-85 NBL WEIGH STATION FROM SR-1302 (CROWDERS MOUNTAIN RD)
TO SR-1307 (EDGEWOOD RD).

TYPE OF WORK WEIGH STATION, GRADING, DRAINAGE, PAVING, LIGHTING & CULVERT
NOTICE:

ALL BIDDERS SHALL COMPLY WITH ALL APPLICABLE LAWS REGULATING THE PRACTICE OF GENERAL CONTRACTING AS CONTAINED IN CHAPTER 87 OF THE GENERAL STATUTES OF NORTH CAROLINA WHICH REQUIRES THE BIDDER TO BE LICENSED BY THE N.C. LICENSING BOARD FOR CONTRACTORS WHEN BIDDING ON ANY NON-FEDERAL AID PROJECT WHERE THE BID IS \$30,000 OR MORE, EXCEPT FOR CERTAIN SPECIALTY WORK AS DETERMINED BY THE LICENSING BOARD. BIDDERS SHALL ALSO COMPLY WITH ALL OTHER APPLICABLE LAWS REGULATING THE PRACTICES OF ELECTRICAL, PLUMBING, HEATING AND AIR CONDITIONING AND REFRIGERATION CONTRACTING AS CONTAINED IN CHAPTER 87 OF THE GENERAL STATUTES OF NORTH CAROLINA. NOTWITHSTANDING THESE LIMITATIONS ON BIDDING, THE BIDDER WHO IS AWARDED ANY FEDERAL - AID FUNDED PROJECT SHALL COMPLY WITH CHAPTER 87 OF THE GENERAL STATUTES OF NORTH CAROLINA FOR LICENSING REQUIREMENTS WITHIN 60 CALENDAR DAYS OF BID OPENING.

BIDS WILL BE RECEIVED AS SHOWN BELOW:

THIS IS A SCALES PROPOSAL

5% BID BOND OR BID DEPOSIT REQUIRED

PROJECT SPECIAL PROVISIONS**GENERAL****CONTRACT TIME AND LIQUIDATED DAMAGES:**

(8-15-00) (Rev. 12-18-07)

108

SPI G07 A

The date of availability for this contract is **April 28, 2014**, except that work in jurisdictional waters and wetlands shall not begin until a meeting between the DOT, Regulatory Agencies, and the Contractor is held as stipulated in the permits contained elsewhere in this proposal. This delay in availability has been considered in determining the contract time for this project.

The completion date for this contract is **November 15, 2017**.

Except where otherwise provided by the contract, observation periods required by the contract will not be a part of the work to be completed by the completion date and/or intermediate contract times stated in the contract. The acceptable completion of the observation periods that extend beyond the final completion date shall be a part of the work covered by the performance and payment bonds.

The liquidated damages for this contract are **Two Hundred Dollars (\$200.00)** per calendar day. These liquidated damages will not be cumulative with any liquidated damages which may become chargeable under Intermediate Contract Time Number 1.

INTERMEDIATE CONTRACT TIME NUMBER 1 AND LIQUIDATED DAMAGES:

(7-1-95) (Rev. 2-21-12)

108

SPI G13 A

Except for that work required under the Project Special Provisions entitled *Planting, Reforestation* and/or *Permanent Vegetation Establishment* and NCDOT ITS and Signal Project Special Provisions Systems Warranty, included elsewhere in this proposal, the Contractor will be required to complete all work included in this contract and shall place and maintain traffic on same.

The date of availability for this intermediate contract time is **April 28, 2014**.

The completion date for this intermediate contract time is **November 15, 2016**.

The liquidated damages for this intermediate contract time are **Two Thousand Dollars (\$2,000)** per calendar day.

Upon apparent completion of all the work required to be completed by this intermediate date, a final inspection will be held in accordance with Article 105-17 and upon acceptance, the Department will assume responsibility for the maintenance of all work except *Planting, Reforestation* and/or *Permanent Vegetation Establishment System Warranty*. The Contractor will be responsible for and shall make corrections of all damages to the completed roadway caused by his planting operations, whether occurring prior to or after placing traffic through the project.

MAJOR CONTRACT ITEMS:

(2-19-02)

104

SP1 G28

The following listed items are the major contract items for this contract (see Article 104-5 of the 2012 *Standard Specifications*):

Line #	Description
7	Unclassified Excavation
9	Borrow Excavation
57	11 ½" PCC Pavement Ramps (With Dowels)

SPECIALTY ITEMS:

(7-1-95)(Rev. 1-17-12)

108-6

SP1 G37

Items listed below will be the specialty items for this contract (see Article 108-6 of the 2012 *Standard Specifications*).

Line #	Description
3 thru 4	Building Items
97 thru 106	Guardrail
107 thru 109	Fencing
113 thru 140	Signing
154 thru 160	Long-Life Pavement Markings
167	Permanent Pavement Markers
168 thru 196	Lighting
197 thru 203	Utility Construction
204 thru 231	Erosion Control
232 thru 304	Signals/ITS System

FUEL PRICE ADJUSTMENT:

(11-15-05) (Rev. 2-18-14)

109-8

SP1 G43

Revise the 2012 *Standard Specifications* as follows:

Page 1-83, Article 109-8, Fuel Price Adjustments, add the following:

The base index price for DIESEL #2 FUEL is **\$3.1476** per gallon. Where any of the following are included as pay items in the contract, they will be eligible for fuel price adjustment.

The pay items and the fuel factor used in calculating adjustments to be made will be as follows:

Description	Units	Fuel Usage Factor Diesel
Unclassified Excavation	Gal/CY	0.29
Borrow Excavation	Gal/CY	0.29
Class IV Subgrade Stabilization	Gal/Ton	0.55
Aggregate Base Course	Gal/Ton	0.55
Sub-Ballast	Gal/Ton	0.55

Asphalt Concrete Base Course, Type _____	Gal/Ton	2.90
Asphalt Concrete Intermediate Course, Type _____	Gal/Ton	2.90
Asphalt Concrete Surface Course, Type _____	Gal/Ton	2.90
Open-Graded Asphalt Friction Course	Gal/Ton	2.90
Permeable Asphalt Drainage Course, Type _____	Gal/Ton	2.90
Sand Asphalt Surface Course, Type _____	Gal/Ton	2.90
Aggregate for Cement Treated Base Course	Gal/Ton	0.55
Portland Cement for Cement Treated Base Course	Gal/Ton	0.55
" Portland Cement Concrete Pavement	Gal/SY	0.245
Concrete Shoulders Adjacent to ___" Pavement	Gal/SY	0.245

SCHEDULE OF ESTIMATED COMPLETION PROGRESS:

(7-15-08) (Rev. 5-21-13)

108-2

SP1 G58

The Contractor's attention is directed to the Standard Special Provision entitled *Availability of Funds Termination of Contracts* included elsewhere in this proposal. The Department of Transportation's schedule of estimated completion progress for this project as required by that Standard Special Provision is as follows:

	<u>Fiscal Year</u>	<u>Progress (% of Dollar Value)</u>
2014	(7/01/13 - 6/30/14)	8% of Total Amount Bid
2015	(7/01/14 - 6/30/15)	51% of Total Amount Bid
2016	(7/01/15- 6/30/16)	33% of Total Amount Bid
2017	(7/01/16 - 6/30/17)	8% of Total Amount Bid

The Contractor shall also furnish his own progress schedule in accordance with Article 108-2 of the *2012 Standard Specifications*. Any acceleration of the progress as shown by the Contractor's progress schedule over the progress as shown above shall be subject to the approval of the Engineer.

DISADVANTAGED BUSINESS ENTERPRISE:

(10-16-07)(Rev. 12-17-13)

102-15(J)

SP1 G61

Description

The purpose of this Special Provision is to carry out the U.S. Department of Transportation's policy of ensuring nondiscrimination in the award and administration of contracts financed in whole or in part with Federal funds. This provision is guided by 49 CFR Part 26.

Definitions

Additional DBE Subcontractors - Any DBE submitted at the time of bid that will not be used to meet the DBE goal. No submittal of a Letter of Intent is required.

Committed DBE Subcontractor - Any DBE submitted at the time of bid that is being used to meet the DBE goal by submission of a Letter of Intent. Or any DBE used as a replacement for a previously committed DBE firm.

Contract Goal Requirement - The approved DBE participation at time of award, but not greater than the advertised contract goal.

PRICE ADJUSTMENT - ASPHALT BINDER FOR PLANT MIX:

(11-21-00)

620

SP6 R25

Price adjustments for asphalt binder for plant mix will be made in accordance with Section 620 of the *2012 Standard Specifications*.

The base price index for asphalt binder for plant mix is **\$559.29** per ton.

This base price index represents an average of F.O.B. selling prices of asphalt binder at supplier's terminals on **February 1, 2014**.

FINAL SURFACE TESTING NOT REQUIRED:

(5-18-04) (Rev. 5-15-12)

610

SP6 R45

Final surface testing is not required on this project.

OIL/WATER SEPARATOR:**Description**

This work consists of constructing an oil/water separator in adjacent to the weigh station in accordance with the plans and as directed by the Engineer.

Construction Methods

Construct oil/water separator to accommodate draining from the adjacent weigh station static scales. Oil/water separator shall be designed by the Contractor in accordance with the International Plumbing Code (IPC) Chapter 10, Section 1003 and Subsection 1003.4. This work does not include the oil/water separator located inside the Weigh Station Inspection Building which is covered under the inspection building plans and provisions.

Measurement and Payment

Oil/Water Separator will be measured and paid in units of each. Such price includes, but is not limited to, all material, labor, design of the separator, and other work required to construct the separator as shown in the plans and as directed by the Engineer.

Payment will be made under:

Pay Item

Oil/Water Separator

Pay Unit

Each

SLUICE GATE:

(7-1-95) (Rev. 3-17-09)

838

SP8 R20

Description

This work consists of the construction of a sluice gate on an endwall in accordance with the details in the plans, the applicable requirements of Section 838 of the *2012 Standard*

DIVISION 7 - THERMAL AND MOISTURE PROTECTION

SECTION 07140

FLUID-APPLIED WATERPROOFING

PART 1 GENERAL

1.01 SECTION INCLUDES

- A. Fluid applied membrane waterproofing.
- B. Cant strips and other accessories.
- C. Drainage panels and Protection boards.

1.02 REFERENCE STANDARDS

- A. ASTM C836/C836M - Standard Specification for High Solids Content, Cold Liquid-Applied Elastomeric Waterproofing Membrane for Use With Separate Wearing Course; 2012.
- B. ASTM C1306 - Standard Test Method for Hydrostatic Pressure Resistance of a Liquid-Applied Waterproofing Membrane; 2008.
- C. ASTM D412 - Standard Test Methods for Vulcanized Rubber and Thermoplastic Elastomers- Tension; 2006a.
- D. ASTM D429 - Standard Test Methods for Rubber Property--Adhesion to Rigid Substrates; 2008.
- E. ASTM D624 - Standard Test Method For Tear Strength of Conventional Vulcanized Rubber and Thermoplastic Elastomers; 2000 (Reapproved 2012).
- F. ASTM C661 - Standard Test Method for Indentation Hardness of Elastomeric-Type Sealants by Means of a Durometer; 2006 (Reapproved 2011).
- G. ASTM D746 - Standard Test Method for Brittleness Temperature of Plastics and Elastomers by Impact; 2007.
- H. ASTM D2240 - Standard Test Method For Rubber Property--Durometer Hardness; 2005 (Reapproved 2010).
- I. ASTM D2370 - Standard Test Method for Tensile Properties of Organic Coatings; 1998 (Reapproved 2010).
- J. ASTM D2939 - Standard Test Methods for Emulsified Bitumens Used As Protective Coatings; 2003.
- K. ASTM D3468 - Standard Specification for Liquid-Applied Neoprene and Chlorosulfonated Polyethylene Used in Roofing and Waterproofing; 1999 (Reapproved 2006).
- L. ASTM D4541 - Standard Test Method for Pull-Off Strength of Coatings Using Portable Adhesion Testers; 2009.
- M. ASTM D5385 - Standard Test Method for Hydrostatic Pressure Resistance of Waterproofing Membranes; 1993 (Reapproved 2006).
- N. ASTM E96/E96M - Standard Test Methods For Water Vapor Transmission of Materials; 2010.
- O. ASTM E154 - Standard Test Methods for Water Vapor Retarders Used in Contact with Earth Under Concrete Slabs, on Walls, or as Ground Cover; 2008a.

1.03 SUBMITTALS

- A. See Section 01 3000 - Administrative Requirements, for submittal procedures.
- B. Product Data: Provide data for membrane.

- C. Shop Drawings: Indicate special joint or termination conditions and conditions of interface with other materials.
- D. Warranty: Submit manufacturer warranty and ensure forms have been completed in Owner's name and registered with manufacturer.

1.04 QUALITY ASSURANCE

1.05 FIELD CONDITIONS

- A. Maintain ambient temperatures above 40 degrees F for 24 hours before and during application and until cured.

1.06 WARRANTY

- A. See Section 01 7800 - Closeout Submittals, for additional warranty requirements.
- B. Contractor shall correct defective Work within a five year period after Date of Substantial Completion; remove and replace materials concealing waterproofing at no cost to Owner.

PART 2 PRODUCTS

2.01 MANUFACTURERS

- A. Hot-Applied Rubberized Asphalt Waterproofing Manufacturers:
 - 1. American Hydrotech, Inc; www.hydrotechusa.com.
 - 2. Barrett Company; www.barrettroofs.com.
 - 3. Carlisle Coatings & Waterproofing, Inc; www.carlisle-ccw.com.
 - 4. W.R. Meadows, Inc; www.wrmeadows.com.
 - 5. Substitutions: See Section 01 6000 - Product Requirements.

2.02 MEMBRANE AND FLASHING MATERIALS

- A. Hot-Applied Rubberized Asphalt Waterproofing: Elasticized rubberized asphaltic compound, hot-applied and quick setting.
 - 1. Cured Thickness: 0.03 inches, minimum.
 - 2. Suitable for installation over concrete substrates.
 - 3. Tensile Strength: 15 psi, measured in accordance with ASTM D412.
 - 4. Ultimate Elongation: 500 percent, measured in accordance with ASTM D412.
 - 5. Hardness: 60, measured in accordance with ASTM D2240, using Type A durometer.
 - 6. Tear Strength: 150 lbf/inch, measured in accordance with ASTM D624.
 - 7. Water Vapor Permeability: 0.014 perm inch, measured in accordance with ASTM E96/E96M.
 - 8. Adhesion: Greater than 150 psi, measured in accordance with ASTM D4541.
 - 9. Brittleness Temperature: -40 F, measured in accordance with ASTM D746.

2.03 ACCESSORIES

- A. Surface Conditioner: compatible with membrane compound; as recommended by membrane manufacturer.
- B. Protection Board: Type capable of preventing damage to waterproofing due to backfilling and construction traffic.
 - 1. Use one of the following:
 - a. Polystyrene foam board, 1 inch thick.
 - b. Recycled or reclaimed closed-cell foam plastic with non-woven filter fabric cover; 1 inch thick.
 - c. Semi-rigid glass fiber board; unaffected by water, freeze-thaw, fungus, or soil bacteria; containing no formaldehyde, phenol, acrylic, or artificial color; 3/4 inch thick, nominal.

PART 3 EXECUTION

3.01 EXAMINATION

- A. Verify existing conditions before starting work.
- B. Verify substrate surfaces are free of frozen matter, dampness, loose particles, cracks, pits, projections, penetrations, or foreign matter detrimental to adhesion or application of waterproofing system.

- C. Verify that substrate surfaces are smooth, free of honeycomb or pitting, and not detrimental to full contact bond of waterproofing materials.
- D. Verify that items that penetrate surfaces to receive waterproofing are securely installed.

3.02 PREPARATION

- A. Protect adjacent surfaces not designated to receive waterproofing.
- B. Clean and prepare surfaces to receive waterproofing in accordance with manufacturer's instructions. Vacuum substrate clean.
- C. Do not apply waterproofing to surfaces unacceptable to manufacturer.
- D. Seal cracks and joints with sealant using methods recommended by sealant manufacturer.
- E. Install cant strips at inside corners.

3.03 INSTALLATION

- A. Apply waterproofing in accordance with manufacturer's instructions to specified minimum thickness.
- B. Apply primer or surface conditioner at a rate recommended by manufacturer. Protect conditioner from rain or frost until dry.
- C. At joints and cracks less than 1/2 inch in width including joints between horizontal and vertical surfaces, apply 12 inch wide strip of joint cover sheet.
- D. At joints from 1/2 to 1 inch in width, loop joint cover sheet down into joint between 1-1/4 and 1-3/4 inch. Extend sheet 6 inches on either side of expansion joint.
- E. Center joint cover sheet over joints. Roll sheet into 1/8 inch coating of waterproofing material. Apply second coat over sheet extending minimum of 6 inches beyond sheet edges.
- F. Apply extra thickness of waterproofing material at corners, intersections, and angles.
- G. Install flexible flashings where required and seal into waterproofing material. Seal items penetrating through membrane with flexible flashings.
- H. Seal membrane and flashings to adjoining surfaces. Install termination bar at all edges. Install counterflashing over all exposed edges.

3.04 INSTALLATION - PROTECTION BOARD

- A. Place protection board directly against cured membrane; butt joints. Scribe and cut boards around projections, penetrations, and interruptions.

3.05 FIELD QUALITY CONTROL

- A. Flood to minimum depth of 1 inch with clean water. After 48 hours, inspect for leaks.
- B. If leaking is found, remove water, repair leaking areas with new waterproofing materials as directed by Architect; repeat flood test. Repair damage to building.
- C. When area is proven watertight, drain water and remove dam.

3.06 PROTECTION

- A. Do not permit traffic over unprotected or uncovered membrane.

END OF SECTION 07140

2. Peerless Products, Inc: www.peerlessproducts.com.
3. TRACO: www.traco.com.
4. Wausau Window and Wall Systems: www.wausauwindow.com.
5. YKK-AP: www.ykkap.com
5. Substitutions: See Section 01600 - Product Requirements.

2.02 WINDOWS

- A. Windows: Tubular aluminum sections, factory fabricated, factory finished, thermally broken, vision glass, related flashings, anchorage and attachment devices.
 1. Frame Depth: 4".
 2. Air Infiltration: Limit air infiltration through assembly to 0.10 cu ft/min/sq ft of wall area, measured at a specified differential pressure across assembly in accordance with ASTM E283.
 3. Water Infiltration Test Pressure Differential: 15.0 pounds per square foot.
- B. Standard Glazing – U Value: 0.27.
- C. Fixed, Non-Operable Type:
 1. Construction: Thermally broken.
 2. Glazing: See Glass Schedule, Drawing A5.
 3. Exterior Finish: Class I natural anodized.
 4. Interior Finish: Class I natural anodized.
- D. Horizontal Sliding Type:
 1. Construction: Thermally broken.
 2. Provide screens.
 3. Glazing: See Glass Schedule, Drawing A5.
 4. Exterior Finish: Class I natural anodized.
 5. Interior Finish: Class I natural anodized.
- E. Horizontal Sliding Type:
 1. Construction: Non-thermal.
 2. Provide screens.
 3. Glazing: See Glass Schedule, Drawing A5.
 4. Exterior Finish: Class I natural anodized.
 5. Interior Finish: Class I natural anodized.

2.03 ACCESSORIES

- A. Sill Flashing: Match material & finish of window; design shall permit proper installation of backer rod & sealant along bottom and at sides.
- B. Insect Screen Frame: Rolled aluminum frame of rectangular sections; fit with adjustable hardware; nominal size similar to operable glazed unit.
- C. Operable Sash Weatherstripping: Wool pile; permanently resilient, profiled to achieve effective weather seal.
- D. Fasteners: Stainless steel.
- E. Glass and Glazing Materials: As specified in Section 08800.
- F. Sealant and Backing Materials: As specified in Section 07900.

2.04 MATERIALS

- A. Extruded Aluminum: ASTM B221 (ASTM B221M), 6063 alloy, T6 temper.

2.05 HARDWARE

- A. Sash lock: Lever handle with cam lock.
- B. Operator: Lever action handle fitted to projecting sash arms with limit stops.
- C. Bottom Rollers: Stainless steel, adjustable.

ALUMINUM WINDOWS

- D. Limit Stops: Resilient rubber.

2.06 FABRICATION

- A. Fabricate components with smallest possible clearances and shim spacing around perimeter of assembly that will enable window installation and dynamic movement of perimeter seal.
- B. Accurately fit and secure joints and corners. Make joints flush, hairline, and weatherproof.
- C. Prepare components to receive anchor devices.
- D. Arrange fasteners and attachments to ensure concealment from view.
- E. Prepare components with internal reinforcement for operating hardware.
- F. Provide steel internal reinforcement in mullions as required to meet loading requirements.
- G. Provide internal drainage of glazing spaces to exterior through weep holes.
- H. Assemble insect screen frames with mitered and reinforced corners. Secure wire mesh tautly in frame. Fit frame with four, spring loaded steel pin retainers.
- I. Double weatherstrip operable units.
- J. Factory glaze window units.

2.07 FINISHES

- A. Class I Light Bronze Anodized Finish.
- B. Apply 1 coat of bituminous coating to concealed aluminum and steel surfaces in contact with dissimilar materials.

PART 3 EXECUTION

3.01 EXAMINATION

- A. Verify that wall openings and adjoining air and vapor seal materials are ready to receive aluminum windows.

3.02 INSTALLATION

- A. Install windows in accordance with manufacturer's instructions.
- B. Attach window frame and shims to perimeter opening to accommodate construction tolerances and other irregularities.
- C. Align window plumb and level, free of warp or twist. Maintain dimensional tolerances and alignment with adjacent work.
- D. Install sill and sill end angles.
- E. Provide thermal isolation where components penetrate or disrupt building insulation. Pack fibrous insulation in shim spaces at perimeter of assembly to maintain continuity of thermal barrier.
- F. Coordinate attachment and seal of perimeter air barrier and vapor retarder materials.
- G. Install operating hardware not pre-installed by manufacturer.
- H. Install glass and infill panels in accordance with requirements specified in Section 08800.
- I. Install perimeter sealant in accordance with requirements specified in Section 07900.

3.03 TOLERANCES

- A. Maximum Variation from Level or Plumb: 1/16 inches every 3 ft non-cumulative or 1/8 inches per 10 ft, whichever is less.

3.04 ADJUSTING

- A. Adjust hardware for smooth operation and secure weathertight closure.

ALUMINUM WINDOWS

3.05 CLEANING

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- A. Remove protective material from factory finished aluminum surfaces.
- B. Wash surfaces by method recommended and acceptable to sealant and window manufacturer; rinse and wipe surfaces clean.
- C. Remove excess sealant by moderate use of mineral spirits or other solvent acceptable to sealant and window manufacturer.

END OF SECTION

PART 1 - GENERAL

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1.01 SUMMARY

- A. Section Includes:
 - 1. Insulating glass units.
 - 2. Non-insulating glass units.
 - 2. Glazing accessories.
- B. Types of work in this section include work for:
 - 1. Single pane glass in interior aluminum windows.
 - 2. Single pane glass in interior doors.
 - 3. Insulating glass units in exterior aluminum windows.
 - 4. Insulating glass units in exterior doors.

1.02 PERFORMANCE REQUIREMENTS

- A. Exterior Glazing: Provide glazing assemblies which will withstand normal conditions without failure, loss of weathertightness, or deterioration.
- B. Deterioration includes:
 - 1. For insulating glass:
 - a. Moisture or dirt between panes.
 - b. Development of condensation between panes.
 - c. Damage to internal coating, if any.
 - d. Development of other visible indication of seal failure.

1.03 SUBMITTALS

- A. Product Data.
- B. Insulating Unit Warranty.

1.04 WARRANTY

- A. Warranty on Insulating Glass: Fabricator's standard warranty for 5 years.

PART 2 - PRODUCTS

2.01 MANUFACTURERS

- A. Manufacturers:
 - 1. Products of the following manufacturers or approved equal, provided they comply with requirements of the contract documents, will be among those considered acceptable:
 - a. Guardian Industries Corporation: www.guardian.com
 - b. Oldcastle Building Envelope: www.oldcastlebe.com
 - c. Pittsburgh Paint and Glass:
 - d. Viracon, Inc.: www.viracon.com

2.02 GLASS TYPES

- A. Glass Types - General: Provide glass types fabricated of the glass products indicated.
 - 1. Single lite glass thickness: 6 mm (1/4 inch nominal), unless otherwise indicated.
 - 2. Where safety glazing is required by governing authorities, provide certified safety glazing.
- B. Glass Type G1: Insulating units at sliding and fixed windows.
 - 1. Total thickness: 1 inch insulating, nominal.
 - 2. Exterior: Basis of Design: PPG Solarban 60 clear on clear
 - a. Two-ply.
 - b. Thickness of plies: 1/4" (6 mm).
 - c. Color: Outer and inner plies: Clear.
 - d. Shading Coefficient: 0.45.
 - e. Solar Heat Gain Coefficient: 0.39.
 - f. visible light transmission=70%.
 - g. Winter U-value: 0.29 or better.
 - h. Summer U-value: 0.27 or better.
 - i. Air Space: 1/2" thick.

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- C. Glass Type G2: Insulating units at exterior doors. **464**
1. Total thickness: 1 1/16 inch insulating, nominal.
 2. Exterior: Basis of Design: PPG Solarban 60 clear on clear
 - a. Two-ply.
 - b. Thickness of plies: 1/4" (6 mm).
 - c. Color: Outer and inner plies: Clear.
 - d. Shading Coefficient: 0.45
 - e. Solar Heat Gain Coefficient: 0.39.
 - f. visible light transmission=70%.
 - g. Winter U-value: 0.29 or better.
 - h. Summer U-value: 0.27 or better.
 - i. Air Space: 3/16" thick.
- D. Glass Type G3: 1" Fully Tempered Insulating glass units. Thermal requirements same as Type G1.
- E. Glass Type G4: 1/4" Clear Fully Tempered Float Glass.

2.03 BASIC GLASS PRODUCTS

- A. Sealed Insulating Units: Factory-assembled multiple panes separated by and sealed to spacers forming air-tight, dehydrated air space(s).
1. ASTM E 774, Class B.
 2. Spacer seals: Manufacturer's standard.
- B. Fully tempered float Glass: Quality q3, unless otherwise indicated.
1. ASTM C 1048, Kind FT, Condition A, Type 1, Class 1. Minimized distortion.
- C. Clear Float Glass: Quality q3, unless otherwise indicated.
1. ASTM C 1036, Type 1, Class 1 (Clear).

2.04 INSTALLATION MATERIALS

- A. Installation Materials - General: Select products which have appropriate performance characteristics as recommended by glass and glazing materials manufacturers and which are compatible with all materials with which they will come into contact.
- B. Heel and Toe Bead Sealant: Non-curing, non-skinning, minimum 75 percent solids, butyl or polyisobutylene rubber, complying with 802.3, Type II ductile back bedding compound, as described in AAMA 800.

PART 3 - EXECUTION

3.01 INSTALLATION - GENERAL

- A. Comply with recommendations for installation contained in the FGMA "Glazing Manual" and "Sealant Manual" except when specifically not recommended or prohibited by the glass or glazing material manufacturer; comply with manufacturer's recommendations.
- B. Protect glazing from edge damage during handling and installation.
- C. Do not install glass that has edge damage or defects that reduce glass strength or performance or diminish appearance.

3.02 GLAZING IN FRAMES

- A. Use continuous heel or toe bead at all exterior glazing.
- B. Do not block weep holes.
- C. Structural Adhesive Glazing: Perform glazing in strict accordance with instructions of structural glazing adhesive manufacturer and additional requirements elsewhere in the contract documents.

3.03 PROTECTION AND CLEANING

- A. Protect glass from contact with contaminating substances resulting from construction operations including weld splatter.
- B. Wash glass on both faces not more than four (4) days prior to date scheduled for inspections that establish date of Substantial Completion. Wash glass as recommended by glass manufacturer.

END OF SECTION 08800

- D. Anchor Bolts: ASTM A307, galvanized to ASTM A153/A153M.
- E. Bolts, Nuts, and Washers: ASTM A325 (ASTM A325M), Type 1, galvanized to ASTM A153/A153M, Class C.
- F. Welding Materials: Type required for materials being welded.
- G. Primer: SSPC-Paint 20, zinc rich.
- H. Grout: ASTM C1107/C1107M, Non-shrink type, premixed compound consisting of non-metallic aggregate, cement, water reducing and plasticizing agents, capable of developing minimum compressive strength of 2400 psi in two days and 7000 psi in 28 days.

2.04 MATERIALS - WALLS AND ROOF

- A. Steel Sheet: Hot-dipped galvanized steel sheet, ASTM A653/A653M, SS Grade 33/230, with G90/Z275 coating.
- B. Steel Sheet: ASTM A792/A792M aluminum-zinc alloy coated to AZ50/AZM150.
- C. Insulation: ASTM C665 Type II Class A; R-19 minimum.
 - 1. Vapor Retarder: Sheet polypropylene/metallized polyester with fiberglass reinforcing scrim, 0.0015 inch thick minimum, white; ASTM C1136, Type II.
- D. Joint Seal Gaskets: Manufacturer's standard type.
- E. Fasteners: Manufacturer's standard type, galvanized to comply with requirements of ASTM A153/A153M, finish to match adjacent surfaces when exterior exposed.
- F. Bituminous Paint: Asphaltic type.
- G. Roof Curbs: Insulated metal same as roofing, designed for imposed equipment loads, anchor fasteners to equipment, counterflashed to metal roof system.
- H. Trim, Closure Pieces, Caps, Flashings, Rain Water Diverter: Same material, thickness and finish as exterior sheets; brake formed to required profiles.
- I. Thermal Blocks: Manufacturer's standard. Thermal value: R-5 minimum.
- J. Snow Guards: Provide snow guards specifically designed to fit profile of roof panels provided. Install snow guards per manufacturer's instructions to be permanently attached without penetrating the standing seam or the panel. Finish shall match roof panel.

2.05 FABRICATION - FRAMING

- A. Fabricate members in accordance with AISC Specification for plate, bar, tube, or rolled structural shapes.
- B. Anchor Bolts: Formed with bent shank, assembled with template for casting into concrete.

2.06 FABRICATION - WALL AND ROOF PANELS

- A. Siding: Minimum 24 gauge metal thickness minimum, ribbed profile indicated, 1 1/2 inch deep, lapped edges fitted with continuous gaskets.
- B. Roofing: Minimum 24 gauge metal thickness minimum, standing seam profile, male/female edges fitted with continuous gaskets.
- C. Liner: Minimum 0.015 inch metal thickness, V crimped profile, male/female edges fitted with continuous gaskets.
- D. Soffit Panels: Minimum 24 gauge metal thickness, flat profile indicated, unperforated.
- E. Girts/Purlins: Rolled formed structural shape to receive siding, roofing and liner sheet.
- F. Internal and External Corners: Same material thickness and finish as adjacent material, profile brake formed to required angles. Back brace mitered internal corners.
- G. Flashings, Closure Pieces, Fascia: Same material and finish as adjacent material, profile to suit system.
- H. Fasteners: To maintain load requirements and weather tight installation, same finish as cladding, non-corrosive type.

2.07 FABRICATION - GUTTERS AND DOWNSPOUTS

- A. Fabricate of same material and finish as roofing metal.

3.14 FINAL INSPECTION

- A. When the entire Contract has been completed and the work is ready for final inspection, the Architect/Engineer or his duly authorized representative will make the inspection. At the time of inspection, the Electrical Contractor shall demonstrate to the Architect/Engineer that the various systems and pieces of equipment have been adjusted to operate in accordance with the requirements of the Contract.
- B. **An authorized State Electrical Inspector from the Office of State Construction shall inspect the project during construction and upon completion of the construction phase. It shall be the responsibility of the Electrical Contractor to notify the Inspector as the work progresses. The Electrical Contractor shall schedule the the required inspections including rough-in, above ceiling and final inspections as required.**

3.15 FINAL PAYMENTS

- A. All Final Payments are contingent upon all necessary Certificates and/or Approvals cited above, together with the written Guarantee being presented to the Owner.

3.16 DOCUMENTATION

- A. All tests shall be completely documented indicated time of day, temperature, and all pertinent test information.
- B. All required documentation of readings shall be submitted to the engineer prior to, and as one of the prerequisites for, final acceptance of the project.

END OF SECTION 16010