ADDENDUM NUMBER: 1

UNC CHARLOTTE
ELM, MAPLE AND PINE RESIDENCE HALLS RENOVATIONS
SCO#120994003 - Code: 41226 - Item 307
PROJECT NUMBER 3523-00
January 15, 2016

NOTICE TO CONTRACTORS

This Addendum issued prior to receipt of Bid shall and does hereby become a part of the Construction Documents for the above project.

All principal Contractors shall be responsible for seeing that their Subcontractors are properly apprised of the contents of this Addendum.

All information contained in this Addendum shall supersede and shall take precedence over any conflicting information in the original Bidding Documents dated 12/18/15 and all previous Addendum.

All Contractors shall acknowledge receipt of this Addendum in the space provided in the Proposal Form. Failure to do so may subject Bidder to disqualification.

A. CHANGES TO PRIOR ADDENDA

No changes.

B. CHANGES TO BIDDING REQUIREMENTS

No changes.

C. CHANGES TO CONDITIONS OF THE CONTRACT

No changes.

D. CHANGES TO SPECIFICATIONS

SECTION - 00 00 00 INSTRUCTION TO BIDDERS

a. Add "UNC Charlotte Good Faith Effort Requirements" to Specifications (attached).

SECTION - 00 00 01 NOTICE TO BIDDERS

a. Bid date has been changed to Thursday, February 11, 2016 at 2:00 pm in Room 111 of the Cone University Center (same location).

SECTION - 07 24 00.05 EXTERIOR SOFFITT FINISH SYSTEM

a. Add new section in its entirety.

SECTION - 08 51 13 ALUMINUM WINDOWS

Delete section in its entirety and replace with attached.

SECTION - 14 21 13 ELECTRIC TRACTION ELEVATORS

Part 1 2.02

C. Change to "Drive: Non-regenerative."

Part 1 2.03

C. Change to "Drive: Non-regenerative."

Part 1 2.04

B. Second sentence change to "The drive shall not be set up for regeneration of AC power back into the building grid."

SECTION - 23 05 33 HEAT TRACING FOR HVAC PIPING

Par 1 2.01

Replace B as follows: "B. The heater shall operate on line voltage of 277 VAC without the use of transformers on roof and 120 VAC in underground piping vaults."

SECTION - 23 09 93 SEQUENCE OF OPERATION FOR HVAC CONTROLS

Part 1 Sequence of Operation

Change "F.1" as follows: "1. Upon signal from any exhaust or outside air duct smoke detector, all dedicated outside air units and exhaust fans in the building where the activation occurred shall shut down."

SECTION - 23 21 13 HYDRONIC PIPING

Part 1 2.01.C.6.

Add "a. Tracer wire boxes: Plastic gas and water services longer than 1000 feet in length from curb valve to meter riser must have tracer wire boxes installed in accordance with UNC Charlotte standards. Provide terminal box at each building piping entrance and at Oak Hall central energy plant and at intervals no less than 1000 lineal feet of piping.

SECTION - 26 05 19 LOW-VOLTAGE ELECTRICAL POWER CONDUCTORS AND CABLES

Part 1 1.02

Delete "D. Vibration and Seismic Controls for Electrical Systems."

SECTION - 26 05 29 HANGERS AND SUPPORTS FOR ELECTRICAL SYSTEMS

Part 1 1.02

Delete "C. Vibration and Seismic Controls for Electrical Systems."

SECTION - 26 09 19 ENCLOSED CONTACTORS

Part 1 1.02

Delete "D. Vibration and Seismic Controls for Electrical Systems."

SECTION - 26 22 00 LOW VOLTAGE TRANSFORMERS

Part 1 1.02

Delete "D. Vibration and Seismic Controls for Electrical Systems."

SECTION - 26 24 16 PANELBOARDS

Part 1 1.02

Delete "F. Vibration and Seismic Controls for Electrical Systems."

SECTION - 26 27 16 ELECTRICAL CABINETS AND ENCLOSURES

Part 1 1.02

Delete "E. Vibration and Seismic Controls for Electrical Systems."

SECTION - 26 28 17 ENCLOSED CIRCUIT BREAKERS

Part 1 1.02

Delete "B. Vibration and Seismic Controls for Electrical Systems."

SECTION - 26 28 18 ENCLOSED SWITCHES

Part 1 1.02

Delete "C. Vibration and Seismic Controls for Electrical Systems."

SECTION - 26 29 13 ENCLOSED CONTROLLERS

Part 1 1.02

Delete "E. Vibration and Seismic Controls for Electrical Systems."

SECTION - 26 36 00 TRANSFER SWITCHES

Part 1 1.02

Delete "E. Vibration and Seismic Controls for Electrical Systems."

SECTION - 26 51 00 INTERIOR LIGHTING

Part 1 1.02

Delete "F. Vibration and Seismic Controls for Electrical Systems."

SECTION - 28 31 05 FIRE ALARM SYSTEM EQUIPMENT

Part 1 1.02

Add "L. Section 08 34 19 Elevator Door Smoke Containment System"

SECTION - TOC - Volume 2 Table of Contents

a. Add 23 21 13 - Hydronic Piping to TOC.

b. Add 23 21 14 - Hydronic Specialties to TOC.

E. CHANGES TO DRAWINGS

SHEET - E003 DETAILS

a. Sheet reissued dated 1/15/16.

SHEET - E070 NEW WORK ELECT. SITE PLAN

a. Sheet reissued dated 1/15/16.

SHEET - E101CF ELM NEW WORK FIRST FLOOR - COMMUNICATION 7 FIRE ALARM

a. Sheet reissued dated 1/15/16.

SHEET - E101LP ELM NEW WORK FIRST FLOOR - LIGHTING & POWER

a. Sheet reissued dated 1/15/16.

SHEET - E102LP ELM NEW WORK SECOND FLOOR - LIGHTING & POWER

a. Sheet reissued dated 1/15/16.

SHEET - E103LP ELM NEW NORK THIRD FLOOR - LIGHTING & POWER

a. Sheet reissued dated 1/15/16.

SHEET - E201CF MAPLE NEW WORK FIRST FLOOR - COMMUNICATION & FIRE ALARM

a. Sheet reissued dated 1/15/16.

SHEET - E201LP MAPLE NEW WORK FIRST FLOOR - LIGHTING & POWER

a. Sheet reissued dated 1/15/16.

SHEET - E202LP MAPLE NEW WORK SECOND FLOOR - LIGHTING & POWER

a. Sheet reissued dated 1/15/16.

SHEET - E602 MAPLE HALL PANEL BOARD SCHEDULES

a. Sheet reissued dated 1/15/16.

SHEET - E701 FIRE ALARM RISER DIAGRAM AND INFORMATION

a. Sheet reissued dated 1/15/16.

SHEET - M100 SITE PLAN MECHANICAL NEW WORK

a. Sheet reissued dated 1/15/16.

SHEET - M104 ROOF MECHANICAL PLANS NEW WORK

a. Sheet reissued dated 1/15/16.

F. CLARIFICATIONS

1. Question: Drawing C300 Item 49 “Proposed Cluster Seating” and Item 58 “Wheelchair Accessible Cluster Seating” do not have details or specifications for a basis of design. Please provide a basis of design manufacturer and model no.

   Response: The cluster seating is an owner preferred alternate and is to be Maglin MLP1104M as noted in the site furnishings schedule on sheet L100.

2. **Question:** We have a pipe layout for drawing M-100 that the scale is not correct. We have a pipe layout drawing C-601 with the correct scale but is different than M-100. What drawing do we use?

   Response: I have double checked, the plan scale of 1”=20’ is correct and the view is properly scaled. To remove any possibility of confusion, I have modified the layout slightly to match civil sheets, added a scale to the vault detail and added notes referring to the civil drawings for vault location and construction. In the case of conflict between site plan M100 and civil site plans, use civil site plan piping layouts.

3. Is Aquatherm pipe and fittings an approved material for underground chilled water and underground hot water system? **Response:**

   Yes, Aquatherm piping has been coordinated with both piping supplier and university and is being supplied with requirement of a 10 year warranty, see spec section 232113, 1.11. Mechanical contractor can price steel piping in bid if concerns remain.

4. Will heat tracing of chilled water and hot water pre-insulated pipe in meter vaults be required?

   Response: Sheet M100 modified in Addendum 1 to show heat trace of chilled, hot and domestic water in vaults.

5. Are tracer wire boxes, for underground chilled water & hot water piping, required at each building location?

   Response: Per University of North Carolina at Charlotte Design and Construction Manual Section 2, Division 33 – Utilities, paragraph 1.4, provide tracer wire boxes every 1000 linear feet of piping. Provide terminal boxes at building and at central energy plant and at intervals no more than 1000 feet. Specification section 232113 to be modified in Addenda 1.

6. After scaling the drawings the scale is not 1" = 1' - 0" Will you provide elevation drawings? Are expansion loops for chilled water required?

Response: As indicated on drawing, vault detail was not initially drawn to scale. As part of Addendum 1, detail has been redrawn to 1/2"=1' scale and notes referring to civil drawings for vault construction have been added. See civil drawings, C600 series, for piping elevation and profiles. Refer to Key Note 4, sheet M100, for expansion loop and anchor requirements.

7. An appliance supplier has asked me what color are the appliances. The color selected affects the cost. Please clarify this issue.

   Response: Bidders to provide black kitchen appliances and white washers & dryers.

8. At the pre-bid meeting yesterday, two of the pre-qualified bidders (33%) asked about extending the bid date 1 week to February 11, 2016. This a very complex and challenging project from an estimating stand point. The demolition, material handling, 15 alternate bids, logistical concerns with University traffic and people, and many other issues make this a difficult estimate to put together. The owner expressed concerns about getting this project through State Construction so it could start on May 16, 2016. The February 11 bid date would still leave over 3 months to accomplish the go ahead from State Construction. J.M. Thompson Co. has constructed numerous projects that involve State Construction and none have needed over 3 months to receive a notice to proceed. Please seriously consider the request to extend the bid date 1 week. It would benefit all parties and would insure that the owner gets the lowest price possible.
   Response: Bid date has been extended to February 11, 2016 at 2pm (same location)

10. The soffit under the new canopy at the west end of Maple Hall has an E.I.F.S. finish. We have no specification to cover this activity. Please provide this necessary spec. section. **Response: New Spec Section issued in Addenda 1.**

ADDENDUM NUMBER: 1

UNC CHARLOTTE
ELM, MAPLE AND PINE RESIDENCE HALLS RENOVATIONS

ENCLOSURES:

SPECIFICATION SECTIONS

00 00 00	UNC CHARLOTTE GOOD FAITH EFFORT REQUIREMENTS
07 24 00.05	EXTERIOR SOFFITT FINISH SYSTEM
08 51 13	ALUMINUM WINDOWS

MECH	ELEC
M100	E003
M104	E070
	E101CF
	E101LP
	E102LP
	E103LP
	E201CF
	E201LP
	E202LP
	E602
	E701

End of Addendum

UNC Charlotte
"Good Faith Effort" Requirements
Elm, Maple, & Pine Residence Halls Renovations
The participation goal for this project is 20% or better

This information is provided as a guide for firms who may be new to UNC Charlotte and may not be familiar with our expectations regarding minority business participation on Formal ($500,000 and above) construction projects. Bidders should be familiar with the ***Guidelines for Recruitment & Selection of Minority Businesses for Participation in State Construction Contracts*** as well as the applicable bid forms;

Identification of HUB Certified/Minority Business Participation form – Only list minority firms that you will use as construction subcontractors, vendors, suppliers or professional service providers on this project. The bidder cannot list himself on this form as he cannot subcontract to himself. **Note:** This form should be submitted with your bid, even if left blank.

Affidavit A – Listing of Good Faith Efforts – the bidder is certifying that he has made a good faith effort to comply under those areas checked on the form. Do not check a Good Faith Effort item unless you can provide the following;

1. Contacting minority businesses that reasonably could have been expected to submit a quote and that were known to the contractor or available on State or local government maintained lists ***at least 10 days before the bid or proposal date*** and notifying them of the nature and scope of the work to be performed.
   Example: Copies of written (emailed or faxed) notification to minority businesses and copies of quotes/proposals received for work solicited to minority businesses. Notification should include, at a minimum, project location, location where plans and specifications may be obtained or viewed, trade or scopes of work for which subcontracts are being solicited, contact person within the prime contractor organization.

   Be sure to maintain a telephone log to confirm that minority firms received your IFB. The log should contain the date contacted, telephone number, and name of the individual representing the minority firm who acknowledged receipt of your IFB. ***Also maintain a telephone log to confirm that minority firms acknowledged a "bid/no bid" to your IFB***. The log should contain the date contacted, telephone number, and name of the individual representing the minority firm who acknowledged "bid/no bid" to your IFB.

2. Making the construction plans, specifications and requirements available for review by prospective minority businesses, or providing these documents to them at least 10 days before the bid or proposals are due.
   Example: Copies of written (emailed or faxed) notification to minority businesses should include, at a minimum, project location, location where plans and specifications may be obtained or viewed, trade or scopes of work for which subcontracts are being solicited, contact person within the prime contractor organization.

3. Breaking down or combining elements of work into economically feasible units to facilitate minority participation.
   Example: Document steps taken to segment elements of work into economically feasible units to meet minority business availability. Identify sub-contractors/suppliers/consultants and scope of work involved in segmenting.

   Be sure that you are soliciting quotes from ***at least*** three (3) minority firms in scopes of work that typically have adequate numbers of minority firms available that can perform the work required

(hauling, concrete, flooring, masonry, painting, electrical suppliers, etc.). Do not solicit quotes from minority firms in those scopes of work that typically do not have minority firms available that can perform the work required (elevators, fire suppression systems, roofing, etc.). If there are minority firms that you typically use on your projects then by all means, feel free to use them, if you are sure you are receiving reasonable pricing and quality work.

4. Working with minority trade, community or contractor organization identified by the Office for Historically Underutilized Businesses (HUB) and included in the bid documents that provide assistance in recruitment of minority businesses. **Note:** Minority plan rooms are not applicable.

   Example: Provide a copy of meeting minutes between prime contractor and minority trade, community or contractor organization. At minimum the following topics should be discussed/reviewed during the meeting: project location; location where plans and specifications may be obtained or viewed; trade or scopes of work for which subcontracts are being solicited; bonding requirements; insurance requirements; prime contractor's contact person; minority trade, community or contractor organization contact person; strategies to segment elements of the work into economically feasible units to meet minority business availability; strategies to increase minority business utilization through joint ventures and/or partnerships; notification that the meeting will be counted toward the contractor's good faith effort.

   Example: Maintain a copy of the request, and have the date, telephone number and name of the individual who acknowledged receipt of your request and information regarding any/all assistance provided by the organization

5. Attending any pre-bid meetings scheduled by the public owner.

   Example: Attendance will be verified by conference sign-in sheet.

6. Providing assistance in getting required bonding or insurance or providing alternatives to bonding or insurance for subcontractors.

   Example: Documentation describing the type of assistance provided or offered to minority businesses. Provide names and contacts of minority businesses to which assistance was offered and names of the contact person of bonding companies or financial institutions offering assistance.

7. Negotiating in good faith with interested minority businesses and not rejecting them as unqualified without sound reasons based on their capabilities. Any rejection of a minority business based on lack of qualification should have the reasons documented in writing.

   Example: Document number of bids received from minority businesses in the trade or scopes of work for which subcontracts are being solicited, the number of minority businesses that submitted low bids or proposals, the number of minority businesses the bidder has offered to negotiate prices or services, and the number of minority businesses the bidder has agreed to utilize on the project, outline steps taken.

8. Providing assistance to an otherwise qualified minority business in need of equipment, loan capital, lines of credit, or joint pay agreements to secure loans, supplies, or letters of credit, including waiving credit that is ordinarily required or assisting minority businesses in obtaining the same unit pricing with the bidders supplier.

   Example: Document names, addresses and telephone numbers of minority businesses to which assistance was offered, outline steps taken. Give dates assistance was offered and document outcome.

9. Negotiating joint venture and partnership arrangements with minority businesses in order to increase opportunities for minority business participation on a public construction or repair project when possible.

Example: Provide a copy of joint venture or partnership arrangements between bidder and minority business.

10. Providing quick pay agreements and policies to enable minority contractors and suppliers to meet cash-flow demands.
    Example: Provide a copy of quick pay agreements and/or policies and document the number of minority businesses that will utilize the quick pay agreement. Provide a copy of the quick pay agreement between bidder and minority business.

Note: ***Referencing the Good Faith Efforts listed above in your IFB is not enough. You must be able to document your efforts.***

Affidavit B – Intent to Perform Contract with Own Workforce – In making this certification the bidder is stating that he does not customarily subcontract elements of this type project and normally performs and has the capability to perform and will perform all elements of the work on this project with his own current workforce. The bidder agrees to make a Good Faith Effort to utilize minority suppliers where possible. "***Self-performing"*** means the contractor has all equipment, personnel and supplies on hand to perform the contract. If the contractor needs to purchase supplies or rent equipment and operators to perform the work, then the contractor ***is not*** self-performing and should make efforts to purchase supplies or equipment, or temporary labor from minority firms. **Note:** No other Affidavits are required if the Bidder meets this criteria.

Affidavit C – Portion of the Work to be Performed by HUB Certified/Minority Businesses – This form is to be submitted only by the apparent lowest responsible, responsive bidder with equal to or greater than 10% minority participation.

Affidavit D – Good Faith Efforts – This form is to be submitted only by the apparent lowest responsible, responsive bidder with less than 10% minority participation along with their backup documentation.

Minority-owned Pre-qualified Bidders – ***must also*** meet the minority participation goals set for the project. Work performed by the minority-owned pre-qualified bidder will be counted towards the minority participation goal ***only if*** the minority contractor is ***self–performing*** and submitted Affidavit B***.***

Certification Requirements – Ensure the minority firms you contact for subcontracting opportunities are listed in the Statewide Uniform Certification (SWUC) Vendor database as ***only firms*** listed in the SWUC Vendor database, at the time of contract award, ***will be counted*** towards the minority participation goal for this project. Go to http://www.doa.nc.gov/hub/searchhub.aspx for access to the SWUC Vendor database.

Assistance:

Email the UNC Charlotte HUB Coordinator, Dorothy Vick (704-687-0527), ***no later than 5:00 PM Tuesday, January 19, 2016*** at dlvick@uncc.edu (***Email Subject: Elm, Maple, Pine Reno)*** for the following;

1. ***Assistance in finding certified minority firms who have worked on UNC Charlotte projects and who can perform the scopes of work (site work, concrete, electrical, etc.) you are seeking,*** and/or

2. ***A list of minority trade, community or contractor organizations*** identified by the Office for Historically Underutilized Businesses that provide assistance in recruitment of minority businesses.

SECTION 07 24 00.05

EXTERIOR SOFFIT FINISH SYSTEM

PART 1 - GENERAL

1.01 SECTION INCLUDES

A. Installation of base coat, reinforcing mesh and finish coat for direct application to glass-mat gypsum wall sheathing.

1.02 REFERENCES

A. ASTM C 150 - Standard Specification for Portland Cement; 2005.

B. ASTM D 968 - Standard Test Methods for Abrasion Resistance of Organic Coatings by Falling Abrasive; 2005.

C. ASTM D 3273 - Standard Test Method for Resistance to Growth of Mold on the Surface of Interior Coatings in an Environmental Chamber; 2000 (Reapproved 2005).

1.03 SUBMITTALS

A. Shop Drawings: Indicate soffit joint patterns, joint details, and molding profiles.

B. Product Data: Provide data on system materials, product characteristics, performance criteria, and system limitations.

C. Selection Samples: Submit manufacturer's standard range of samples illustrating available coating colors and textures.

D. Verification Samples: Submit actual samples of selected coating on specified substrate, minimum 12 inches (300 mm) square, illustrating project colors and textures.

E. Manufacturer's Installation Instructions: Indicate preparation required, installation techniques, and jointing requirements.

1.04 QUALITY ASSURANCE

A. Maintain copy of specified installation standard and manufacturer's installation instructions at project site at all times during installation.

B. Installer Qualifications: Company with not less than 5 years of documented experience and approved by system manufacturer.

C. Provide manufacturer's written acceptance of sheathing product proposed for substrate of exterior soffit finish system.

1.05 MOCK-UP

A. Construct mock-up of typical soffit finish system application on specified substrate, size as required to include examples of all key conditions, and including flashings, joints, and edge conditions.

B. Locate mock-up where directed.

C. Mock-up may remain as part of the Work.

1.06 DELIVERY, STORAGE, AND HANDLING

A. Delivery: Deliver materials to project site in manufacturer's original, unopened containers with labels intact. Inspect materials and notify manufacturer of any discrepancies.

B. Storage: Protect adhesives and finish materials from freezing and temperatures in excess of 90 degrees F (32 degrees C).
   1. Protect Portland cement based materials from moisture and humidity. Store under cover off the ground in a dry location.
   2. Protect insulation materials from exposure to sunlight.

1.07 ENVIRONMENTAL REQUIREMENTS

A. Do not prepare materials or apply soffit finish during inclement weather unless areas of installation are protected. Protect installed soffit finish areas from inclement weather until dry.

B. Do not install finish or sealants when ambient temperature is below 40 degrees F (5 degrees C).

C. Do not leave installed insulation board exposed to sunlight.

1.08 WARRANTY

A. Provide manufacturer's standard material warranty, covering a period of not less than 5 years.

B. Provide separate warranty from installer covering labor for repairs or replacement for a period of not less than 5 years.

PART 2 - PRODUCTS

2.01 MANUFACTURERS

A. Acceptable Manufacturers:
   1. BASF; Product Sonowall Soffit System.
   2. ParexLahabra, Inc; Product Parex Soffit Coating:
   3. Dryvit Systems Inc.; Product Finish System for Exterior Soffits:
   4. Master Wall Inc.; Product Master Wall Soffit and Ceiling System.
   5. Sto Corporation; Product Sto Quik Gold Soffit System.

2.02 EXTERIOR SOFFIT FINISH SYSTEM

A. Exterior Soffit Finish System: Glass fiber mesh reinforced base coating and finish on exterior glass mat sheathing; provide a complete system that includes all components of specified system.

B. Water Degradation Resistance: No cracking, checking, crazing, erosion, blistering, peeling, delamination, or corrosion of finish coating after 14 days exposure, when tested in accordance with ASTM D 2247.

C. Mildew Resistance: No growth supported on finish coating during 28 day exposure period, when tested in accordance with ASTM D 3273.

D. Abrasion Resistance Of Finish: No cracking, checking or loss of film integrity when tested in accordance with ASTM D 968 with 500 liters of sand.

2.03 MATERIALS

A. General: Provide all material for exterior soffit finish system from a single source manufacturer.

B. Finish Coating Top Coat: Water-based, air curing, acrylic finish with integral color and texture.
   1. Texture: Fine.
   2. Color: As selected from manufacturer's range of standard colors.

C. Base Coat: Fiber-reinforced, acrylic-based product compatible with reinforcing mesh.

D. Reinforcing Mesh: Balanced, open weave glass fiber fabric, treated for compatibility and improved bond with coating, weight, strength, and number of layers as required to meet required system impact rating.

2.04 ACCESSORY MATERIALS

A. Gypsum Sheathing Board at Soffit:
   1. Application: Exterior sheathing, unless otherwise indicated.
   2. Mold Resistance: Score of 10, when tested in accordance with ASTM D 3273.
   3. Glass-Mat-Faced Sheathing: Glass mat faced gypsum substrate as defined in ASTM C 1177/C 1177M.
   4. Core Type: Regular.
   5. Regular Board Thickness: 1/2 inch.
   6. Edges: Square, for horizontal application.

7. Glass-Mat-Faced Products:
   a. CertainTeed Corporation; GlasRoc Brand.
   b. Georgia-Pacific Gypsum LLC; DensGlass Gold Sheathing.
   c. National Gypsum Company; Gold Bond Brand e2XP Extended Exposure Sheathing.
   d. Substitutions: See Section 01 60 00 - Product Requirements.

B. Trim: Finish system manufacturer's standard galvanized steel trim accessories, as required for a complete project and including starter track edge trim, control and expansion joint trim etc.

C. Sealant Materials: As recommended by soffit finish system manufacturer..

PART 3 - EXECUTION

3.01 INSTALLATION - GENERAL

A. Install in accordance with finish system manufacturer's instructions.

3.02 EXAMINATION

A. Verify that substrate is sound and free of oil, loose materials, or protrusions that could interfere with installation and is of a type and construction that is acceptable to manufacturer. Do not begin work until substrate and adjacent materials are complete and thoroughly dry.

B. Verify that substrate surface is flat, with no deviation greater than 1/4 in (6 mm) when tested with a 10 ft (3 m) straightedge.

3.03 EXTERIOR SHEATHING INSTALLATION

A. Install on metal framing to comply with sheathing manufacturer's written instructions and research/evaluation report acceptable to authorities having jurisdiction. Install board with steel drill screws spaced no more than 8 inches o.c. along framing with perimeter fasteners at least 3/8 inch but less than 5/8 inch from edges of boards.

3.04 INSTALLATION - FINISH

A. Base Coat: Apply in thickness as necessary to fully embed reinforcing mesh, wrinkle free, including back-wrap at all terminations. Install reinforcing fabric as recommended by system manufacturer.
   1. Lap reinforcing mesh edges and ends a minimum of 2-1/2 inches (64 mm).
   2. Allow base coat to dry a minimum of 24 hours before next coating application.

B. Apply finish coat after base coat has dried not less than 24 hours and finish to a uniform texture and color.

C. Apply sealant at finish perimeter and expansion joints in accordance with sealant manufacturer's instructions.

D. Joints: Install control and expansion joints at spacings indicated on the drawings. Do not exceed 150 sq ft (14 sq m) for areas defined by the placement of control joints.

3.05 CLEANING AND PROTECTION

A. Do not permit finish surface to become soiled or damaged.

B. Remove excess and waste materials from project site.

C. Clean surfaces and work areas of foreign materials resulting from operations.

END OF SECTION

SECTION 08 51 13

ALUMINUM WINDOWS

PART 1 - GENERAL

1.01 SUMMARY

A. Section includes aluminum windows for exterior locations.

1.02 PREINSTALLATION MEETINGS

A. Preinstallation Conference: Conduct conference at Project site.
   1. Review and finalize construction schedule and verify availability of materials, Installer's personnel, equipment, and facilities needed to make progress and avoid delays.
   2. Review and discuss the finishing of aluminum windows that is required to be coordinated with the finishing of other aluminum work for color and finish matching.
   3. Review, discuss, and coordinate the interrelationship of aluminum windows with other exterior wall components. Include provisions for anchorage, flashing, sealing perimeters, and protecting finishes.
   4. Review and discuss the sequence of work required to construct a watertight and weathertight exterior building envelope.
   5. Inspect and discuss the condition of substrate and other preparatory work performed by other trades.

1.03 ACTION SUBMITTALS

A. Product Data: For each type of product.
   1. Include construction details, material descriptions, glazing and fabrication methods, dimensions of individual components and profiles, hardware, and finishes for aluminum windows.

B. Shop Drawings: Include plans, elevations, sections, hardware, accessories, insect screens, operational clearances, and details of installation, including anchor, flashing, and sealant installation.

C. Samples for Verification: For aluminum windows and components required, showing full range of color variations for finishes, and prepared on Samples of size indicated below:
   1. Exposed Finishes: 2 by 4 inches (50 by 100 mm).
   2. Exposed Hardware: Full-size units.

D. Product Schedule: For aluminum windows. Use same designations indicated on Drawings.

1.04 INFORMATIONAL SUBMITTALS

A. Qualification Data: For manufacturer and Installer.

B. Product Test Reports: For each type of aluminum window, for tests performed by a qualified testing agency.

C. Field quality-control reports.

D. Sample Warranties: For manufacturer's warranties.

1.05 QUALITY ASSURANCE

A. Manufacturer Qualifications: A manufacturer capable of fabricating aluminum windows that meet or exceed performance requirements indicated and of documenting this performance by test reports, and calculations.

B. Installer Qualifications: An installer acceptable to aluminum window manufacturer for installation of units required for this Project.

C. Mockups: Build mockups to verify selections made under Sample submittals and to demonstrate aesthetic effects and set quality standards for materials and execution.
   1. Build mockup of typical wall area as shown on Drawings.
   2. Approval of mockups does not constitute approval of deviations from the Contract Documents contained in mockups unless Architect specifically approves such deviations in writing.

1.06 WARRANTY

A. Manufacturer's Warranty: Manufacturer agrees to repair or replace aluminum windows that fail in materials or workmanship within specified warranty period.
   1. Failures include, but are not limited to, the following:
      a. Failure to meet performance requirements.
      b. Structural failures including excessive deflection, water leakage, condensation, and air infiltration.
      c. Faulty operation of movable sash and hardware.
      d. Deterioration of materials and finishes beyond normal weathering.
      e. Failure of insulating glass.
   2. Warranty Period:
      a. Window: 10 years from date of Final Acceptance.
      b. Glazing Units: 10 years from date of Final Acceptance.
      c. Aluminum Finish: 10 years from date of Final Acceptance.

PART 2 - PRODUCTS

2.01 MANUFACTURERS

A. Basis of Design product: Subject to compliance with requirements, provide EFCO series 6555 AW-PG50-HS horizontal sliding and EFCO series 6620 AW-PG80-FW fixed. Window must be a minimum 3-7/8 inches deep and come with sub-frame at head, jamb and sill with sill extension. Window marks B1 & A5 to be EFCO series 325-X AW-PG95-C casement windows to meet ADA operational requirements. Use interior trim connected to sub-frame to reach 3-7/8 inches in depth. EFCO series 5XPT AW-PG155-SD sliding glass door. Sliding glass door to be minimum of 5 inches in depth.

B. Or comparable product by one of the following:
   1. TRACO
   2. Wausau Window and Wall Systems.
   3. YKK AP America Inc.

C. Source Limitations: Obtain aluminum windows, curtain wall, sunshades & canopies from single source from single manufacturer.

2.02 WINDOW PERFORMANCE REQUIREMENTS

A. Product Standard: Comply with AAMA/WDMA/CSA 101/I.S.2/A440 for definitions and minimum standards of performance, materials, components, accessories, and fabrication unless more stringent requirements are indicated.
   1. Window Certification: AMMA certified with label attached to each window.

B. Performance Class and Grade: AAMA/WDMA/CSA 101/I.S.2/A440 as follows:
   1. Sliding windows: AW-PG50
   2. Fixed windows: AW-PG80
   3. Casement windows: AWPG95
   4. Sliding glass door: AW-PG155

C. Thermal Transmittance: NFRC 100 maximum whole-window U-factor of 0.47 Btu/sq. ft. x h x deg F (2.91 W/sq. m x K).

D. Condensation-Resistance Factor (CRF): Provide aluminum windows tested for thermal performance according to AAMA 1503, showing a CRF of 67.

E. Thermal Movements: Provide aluminum windows, including anchorage, that allow for thermal movements resulting from the following maximum change (range) in ambient and surface temperatures by preventing buckling, opening of joints, overstressing of components, failure of joint sealants, failure of connections, and other detrimental effects. Base engineering calculation on surface temperatures of materials due to both solar heat gain and nighttime-sky heat loss.
   1. Temperature Change: 120 deg F (67 deg C), ambient; 180 deg F (100 deg C) material surfaces.

2.03 ALUMINUM WINDOWS

A. Operating Types: Provide the following operating types in locations indicated on Drawings:
   1. Casement: Project out.
   2. Fixed.
   3. Sliding glass windows.
   4. Sliding glass doors.

B. Frames and Sashes: Aluminum extrusions complying with AAMA/WDMA/CSA 101/I.S.2/A440.
   1. Thermally Improved Construction: Fabricate frames, sashes, and muntins with an integral, concealed, low-conductance thermal barrier located between exterior materials and window members exposed on interior side in a manner that eliminates direct metal-to-metal contact.
   2. Subframes: Provide manufacturer's standard subframe assembly for ease of installation.

C. Insulating-Glass Units: ASTM E 2190.
   1. Glass: ASTM C 1036, Type 1, Class 1, q3.
      a. Tint: Clear.
      b. Kind: Fully tempered where indicated on Drawings or required by code.
   2. Lites: Two.
   3. Filling: Fill space between glass lites with argon.
   4. Low-E Coating: Pyrolytic on second surface.

D. Glazing System: Manufacturer's standard factory-glazing system that produces weathertight seal.
   1. Dual Glazing:
      a. Interior Lite: See Section 08 80 00 "Glazing".
      b. Exterior Lite: See Section 08 80 00 "Glazing"..

E. Hardware, General: Provide manufacturer's standard hardware fabricated from aluminum, stainless steel, carbon steel complying with AAMA 907, or other corrosion-resistant material compatible with adjacent materials; designed to smoothly operate, tightly close, and securely lock windows, and sized to accommodate sash weight and dimensions.
   1. Exposed Hardware Color and Finish: As selected by Architect from manufacturer's full range.

F. Thermal Barrier
   1. All exterior aluminum shall be separated from interior aluminum by a rigid, structural thermal barrier. For purposes of this specification, a structural thermal barrier is defined as a system that shall transfer shear during bending and, therefore, promote composite action between the exterior and interior extrusions.
   2. Sills are thermally broken with thermal struts, consisting of glass reinforced polyamide nylon, mechanically crimped in raceways extruded in the exterior and interior extrusions. Other thermally broken members can use the latest technology in two-part, high-density polyurethane. A nonstructural thermal barrier is unacceptable.

G. Hardware
   1. Sliding windows to be auto jamb locks with stainless steel ball bearing rollers.
   2. Sliding glass doors to be multipoint dead lock with stainless steel ball bearing rollers.

3. Casement windows to be 2 point lift lock with extended ADA handles with operating force of less than 5 lbs. Aluminum 5 knuckle butt hinges with Teflon bushing and stainless steel pins. Roto operators with extended ADA handles and an operating force of less than 5 lbs.

H. Weather Stripping: Provide full-perimeter weather stripping for each operable sash unless otherwise indicated.

I. Fasteners: Noncorrosive and compatible with window members, trim, hardware, anchors, and other components.
   1. Exposed Fasteners: Do not use exposed fasteners. For application of hardware, use fasteners that match finish hardware being fastened.

2.04 ACCESSORIES

A. Subsills: Thermally broken, extruded-aluminum subsills in configurations indicated on Drawings.

B. Receptor System: Two-piece, snap-together, thermally broken, extruded-aluminum receptor system that anchors windows in place.

2.05 INSECT SCREENS

A. General: Fabricate insect screens to integrate with window frame. Provide screen for each operable exterior sash. Screen wickets are not permitted.
   1. Type and Location: Half, outside for sliding window.

B. Aluminum Frames: Manufacturer's standard aluminum alloy complying with SMA 1004 or SMA 1201. Fabricate frames with mitered or coped joints or corner extrusions, concealed fasteners, and removable PVC spline/anchor concealing edge of frame.
   1. Tubular Framing Sections and Cross Braces: Roll formed from aluminum sheet.

C. Aluminum Wire Fabric: 18-by-16 (1.1-by-1.3-mm) mesh of 0.011-inch- (0.28-mm-) diameter, coated aluminum wire.
   1. Wire-Fabric Finish: Charcoal gray.

2.06 FABRICATION

A. Fabricate aluminum windows in sizes indicated. Include a complete system for assembling components and anchoring windows.

B. Glaze aluminum windows in the factory.

C. Weather strip each operable sash to provide weathertight installation.

D. Weep Holes: Provide weep holes and internal passages to conduct infiltrating water to exterior.

E. Provide water-shed members above side-hinged sashes and similar lines of natural water penetration.

F. Mullions: Provide mullions and cover plates, matching window units, complete with anchors for support to structure and installation of window units. Allow for erection tolerances and provide for movement of window units due to thermal expansion and building deflections, as indicated. Provide mullions and cover plates capable of withstanding design wind loads of window units.

G. Complete fabrication, assembly, finishing, hardware application, and other work in the factory to greatest extent possible. Disassemble components only as necessary for shipment and installation.

2.07 GENERAL FINISH REQUIREMENTS

A. Comply with NAAMM's "Metal Finishes Manual" for recommendations for applying and designating finishes.

B. Protect mechanical finishes on exposed surfaces from damage by applying a strippable, temporary protective covering before shipping.

C. Appearance of Finished Work: Variations in appearance of abutting or adjacent pieces are acceptable if they are within one-half of the range of approved Samples. Noticeable variations in the same piece are not acceptable. Variations in appearance of other components are acceptable if they are within the range of approved Samples and are assembled or installed to minimize contrast.

2.08 ALUMINUM FINISHES

A. High-Performance Organic Finish (Two-Coat Fluoropolymer): AA-C12C40R1x (Chemical Finish: cleaned with inhibited chemicals; Chemical Finish: conversion coating; Organic Coating: manufacturer's standard two-coat, thermocured system consisting of specially formulated inhibitive primer and fluoropolymer color topcoat containing not less than 70 percent polyvinylidene fluoride resin by weight). Prepare, pretreat, and apply coating to exposed metal surfaces to comply with AAMA 2605 and with coating and resin manufacturers' written instructions.
   1. Color and Gloss: 70% Bone White by EFCO or approved equal by the Architect/Owner.

PART 3 - EXECUTION

3.01 EXAMINATION

A. Examine openings, substrates, structural support, anchorage, and conditions, with Installer present, for compliance with requirements for installation tolerances and other conditions affecting performance of the Work.

B. Verify rough opening dimensions, levelness of sill plate, and operational clearances.

C. Examine wall flashings, vapor retarders, water and weather barriers, and other built-in components to ensure weathertight window installation.

D. Proceed with installation only after unsatisfactory conditions have been corrected.

3.02 INSTALLATION

A. Comply with manufacturer's written instructions for installing windows, hardware, accessories, and other components. For installation procedures and requirements not addressed in manufacturer's written instructions, comply with installation requirements in ASTM E 2112.

B. Install windows level, plumb, square, true to line, without distortion or impeding thermal movement, anchored securely in place to structural support, and in proper relation to wall flashing and other adjacent construction to produce weathertight construction.

C. Install windows and components to drain condensation, water penetrating joints, and moisture migrating within windows to the exterior.

D. Separate aluminum and other corrodible surfaces from sources of corrosion or electrolytic action at points of contact with other materials.

3.03 FIELD QUALITY CONTROL

A. Testing Agency: Owner will engage a qualified testing agency to perform tests and inspections.
   1. Testing and inspecting agency will interpret tests and state in each report whether tested work complies with or deviates from requirements.

B. Testing Services: Testing and inspecting of installed windows shall take place as follows:
   1. Testing Methodology: Testing of windows for air infiltration and water resistance shall be performed according to AAMA 502.
   2. Air-Infiltration Testing:
      a. Test Pressure: That required to determine compliance with AAMA/WDMA/CSA 101/I.S.2/A440 performance class indicated.
      b. Allowable Air-Leakage Rate: 1.5 times the applicable AAMA/WDMA/CSA 101/I.S.2/A440 rate for product type and performance class rounded down to one decimal place.

3. Water-Resistance Testing:
   a. Test Pressure: Two-thirds times test pressure required to determine compliance with AAMA/WDMA/CSA 101/I.S.2/A440 performance grade indicated.
   b. Allowable Water Infiltration: No water penetration.
4. Testing Extent: Five windows as selected by Architect and a qualified independent testing and inspecting agency. Windows shall be tested after perimeter sealants have cured.
5. Test Reports: Prepared according to AAMA 502.

C. Remove and replace noncomplying windows and retest as specified above.

D. Additional testing and inspecting, at Contractor's expense, will be performed to determine compliance of replaced or additional work with specified requirements.

E. Prepare test and inspection reports.

3.04 ADJUSTING, CLEANING, AND PROTECTION

A. Adjust operating sashes and hardware for a tight fit at contact points and weather stripping for smooth operation and weathertight closure.

B. Clean exposed surfaces immediately after installing windows. Avoid damaging protective coatings and finishes. Remove excess sealants, glazing materials, dirt, and other substances.
   1. Keep protective films and coverings in place until final cleaning.

C. Remove and replace glass that has been broken, chipped, cracked, abraded, or damaged during construction period.

D. Protect window surfaces from contact with contaminating substances resulting from construction operations. If contaminating substances do contact window surfaces, remove contaminants immediately according to manufacturer's written instructions.

END OF SECTION