City of Billings
Hail Repair at Miscellaneous City Buildings Bid Package
August 25, 2021

ADDENDUM #1

1. In Section B. Instructions to Bidders, in the first sentence, delete the words, "…Billings Parmly Library Hail Damage Repair…" and replace with, "Hail Repair at Miscellaneous City Buildings."
2. Insert the attached pictures behind their respective Exhibit "A" Quantity Sheets for Fox Pump Station, Staples Pump Station and Willett Pump Station for reference.
3. The following are the physical addresses for the Buildings included in the Bid Package:
    a. Par 3 Main Storage Building – 19 S. 19th Street West
    b. 911 Comm Cntr – 911 N. 24th Street
    c. Dehler Park – 2611 9th Avenue North
    d. MET Bus Transfer – 260 Stewart Park Road
    e. Fire Station #1 – 2305 8th Avenue North
    f. Fire Station #2 – 501 South 28th Street
    g. Fire Station #3 – 1928 17 Street West
    h. Fire Station #5 – 605 South 24th Street West
    i. Fire Station #7 – 1501 54th Street West
    j. Westside Maintenance – 2890 Stillwater Drive
    k. City Hall – 210 North 27th Street
    l. Fox Pump Station – 177 High Sierra Blvd
    m. Staples Pump Station – 3116 17th Street West
    n. Willett Pump Station – 903 Avenue C
4. Included with this Addendum #1 are Specification Sections 085113 Aluminum Windows and Section 086200 Unit Skylights from the original Specification Book for the NEW 911 CALL CENTER when it was built at time of bid. These are for your use in the sourcing the Exterior Windows to be replaced and the Unit Skylights to be replaced.
5. Included with this Addendum is a copy of the Sign-In Sheet for the Mandatory Pre-Bid Walkthrough that took place today, August 25th, 2021.

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6. Replace EXHIBIT “A” Quantity Sheet for WILLETT PUMP STATION in its entirety with attached new EXHIBIT “A” Quantity Sheet for WILLETT PUMP STATION due to a portion of the scope of work has already been completed. Be sure to sign the bottom of this new, added sheet and include with your bid as required previously.
7. Please include your firms approximate SUBSTANTIAL COMPLETION DATE for the Project in the following line:_____. **This form will need to be submitted with your Bid Form.**

End of Addendum #1

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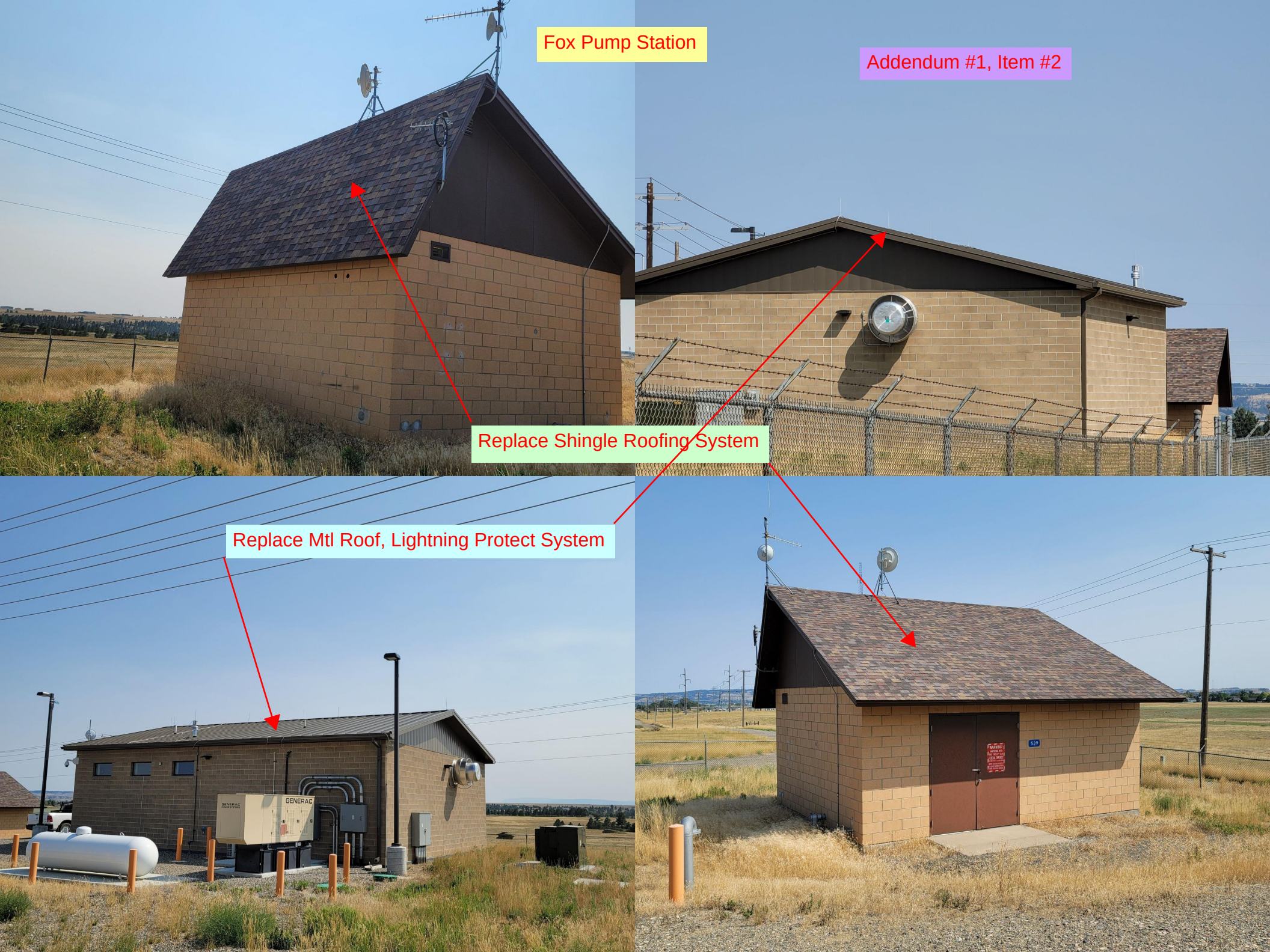
Fox Pump Station
Addendum #1, Item #2
Replace Shingle Roofing System
Replace Mtl Roof, Lightning Protect System
GENERAC


Staples Pump Station
Addendum #1, Item #2
Replace Asphalt Shingles, Hip/Ridge, Vent Caps, Coping, Fascia, Gutters/Downspouts, Man Door
WARNING
VIDEO SURVEILLANCE
WARNING!
TAMPERING WITH THIS FACILITY IS A FEDERAL OFFENSE!
AUTHORIZED PERSONNEL ONLY


Willett Pump Station
Addendum #1, Item #2
Replace Vent Caps and Mtl Coping

Addendum #1, Item #4

SECTION 085113 - ALUMINUM WINDOWS

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

A. This Section includes fixed and operable aluminum-framed windows for exterior locations.

B. Related Sections include the following:

1. Division 08 Section "Hollow Metal Doors and Frames" for coordinating finish among aluminum fenestration units.

1.3 DEFINITIONS

A. Performance class designations according to AAMA/WDMA 101/I.S.2/NAFS:

1. HC: Heavy Commercial.

B. Performance grade number according to AAMA/WDMA 101/I.S.2/NAFS:

1. Design pressure number in pounds force per square foot used to determine the structural test pressure and water test pressure.

C. Structural Test Pressure: For uniform load structural test, is equivalent to 150 percent of the design pressure.

D. Minimum Test Size: Smallest size permitted for performance class (gateway test size). Products must be tested at minimum test size or at a size larger than minimum test size to comply with requirements for performance class.

1.4 PERFORMANCE REQUIREMENTS

A. General: Provide aluminum windows capable of complying with performance requirements indicated, based on testing manufacturer's windows that are representative of those specified, and that are of minimum test size indicated below:

1. Size required by AAMA/WDMA 101/I.S.2/NAFS for gateway performance for both gateway performance and optional performance grade.
2. Size to be field verified.

B. Structural Performance: Provide aluminum windows capable of withstanding the effects of the following loads, based on testing units representative of those indicated for Project that pass AAMA/WDMA 101/I.S.2/NAFS, Uniform Load Structural Test:

1. Design Wind Loads: Determine design wind loads applicable to Project from basic wind speed indicated in miles per hour at 33 feet above grade, according to ASCE 7, Section 6.5, "Method 2-Analytical Procedure," based on mean roof heights above grade indicated on Drawings.

   a. Basic Wind Speed: 120 mph.
   b. Importance Factor: 1.0.
   c. Exposure Category: C.

2. Deflection: Design glass framing system to limit lateral deflections of glass edges to less than 1/175 of glass-edge length or 3/4 inch, whichever is less, at design pressure based on testing performed according to AAMA/WDMA 101/I.S.2/NAFS, Uniform Load Deflection Test or structural computations.

C. 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 (Range): 120 deg F, ambient; 180 deg F material surfaces.

1.5 SUBMITTALS

A. Product Data: Include construction details, material descriptions, fabrication methods, dimensions of individual components and profiles, hardware, finishes, and operating instructions for each type of aluminum window indicated.

B. Shop Drawings: Include plans, elevations, sections, details, hardware, attachments to other work, operational clearances, installation details, and the following:

1. Mullion details, including reinforcement and stiffeners.
2. Joinery details.
3. Expansion provisions.
4. Flashing and drainage details.
5. Weather-stripping details.
6. Thermal-break details.
7. Glazing details.
8. Window cleaning provisions.
9. Window System Operators: Show locations, mounting, and details for installing operator components and controls.
10. For installed products indicated to comply with design loads, include structural analysis data prepared by or under the supervision of a qualified professional engineer detailing

fabrication and assembly of aluminum windows and used to determine the following:

a. Structural test pressures and design pressures from wind loads indicated.
b. Deflection limitations of glass framing systems.

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

D. Qualification Data: For Installer, manufacturer, and professional engineer.

E. Product Test Reports: Based on evaluation of comprehensive tests performed within the last four years by a qualified testing agency for each type, class, grade, and size of aluminum window. Test results based on use of downsized test units will not be accepted.

F. Maintenance Data: For operable window sash, operating hardware, weather stripping, window system operators and finishes to include in maintenance manuals.

G. Warranty: Special warranty specified in this Section.

1.6 QUALITY ASSURANCE

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

1. Installer's responsibilities include providing professional engineering services needed to assume engineering responsibility.
2. Engineering Responsibility: Preparation of data for aluminum windows, including Shop Drawings, based on testing and engineering analysis of manufacturer's standard units in assemblies similar to those indicated for this Project.

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

C. Source Limitations: Obtain aluminum windows through one source from a single manufacturer.

D. Product Options: Information on Drawings and in Specifications establishes requirements for aluminum windows' aesthetic effects and performance characteristics. Aesthetic effects are indicated by dimensions, arrangements, alignment, and profiles of components and assemblies as they relate to sightlines, to one another, and to adjoining construction. Performance characteristics are indicated by criteria subject to verification by one or more methods including preconstruction testing, field testing, and in-service performance.

E. Product Options: Drawings indicate size, profiles, and dimensional requirements of aluminum windows and are based on the specific system indicated. Refer to Division 01 Section "Product Requirements." Do not modify size and dimensional requirements.

1. Do not modify intended aesthetic effects, as judged solely by Architect, except with Architect's approval. If modifications are proposed, submit comprehensive explanatory data to Architect for review.

F. Fenestration Standard: Comply with AAMA/WDMA 101/I.S.2/NAFS, "North American Fenestration Standard Voluntary Performance Specification for Windows, Skylights and Glass Doors," for definitions and minimum standards of performance, materials, components, accessories, and fabrication. Comply with more stringent requirements if indicated.

1. Provide AAMA-certified aluminum windows with an attached label.

G. Glazing Publications: Comply with published recommendations of glass manufacturers and with GANA's "Glazing Manual" unless more stringent requirements are indicated.

H. Preinstallation Conference: Conduct conference at Project site to comply with requirements in Division 01 Section "Project Management and Coordination."

I. Preinstallation Conference: Conduct conference at Project site to comply with requirements in Division 01 Section "Project Management and Coordination." Review methods and procedures related to aluminum windows including, but not limited to, the following:

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 structural anchorage, glazing, flashing, weeping, sealants, and protection of 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.

1.7 PROJECT CONDITIONS

A. Field Measurements: Verify aluminum window openings by field measurements before fabrication and indicate measurements on Shop Drawings.

1. Established Dimensions: Where field measurements cannot be made without delaying the Work, establish opening dimensions and proceed with fabricating aluminum windows without field measurements. Coordinate wall construction to ensure that actual opening dimensions correspond to established dimensions.

1.8 WARRANTY

A. Special Warranty: Manufacturer's standard form in which 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, air infiltration, or condensation.
c. Faulty operation of movable sash and hardware.
d. Deterioration of metals, other materials, and metal finishes beyond normal weathering.
e. Failure of insulating glass.

2. Warranty Period:

a. Window: Five years from date of Substantial Completion.
b. Glazing: Five years from date of Substantial Completion.
c. Metal Finish: Five years from date of Substantial Completion.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

A. Basis-of-Design Product: Subject to compliance with requirements, provide DeSCo 2500 Series or a comparable product by one of the following:

1. DeSCo Windows.
2. Kawneer; an Alcoa Company.
3. Wausau Window and Wall Systems.

2.2 MATERIALS

A. Aluminum Extrusions: Alloy and temper recommended by aluminum window manufacturer for strength, corrosion resistance, and application of required finish, but not less than 22,000-psi ultimate tensile strength, not less than 16,000-psi minimum yield strength, and not less than 0.062-inch thickness at any location for the main frame and sash members.

B. Fasteners: Aluminum, nonmagnetic stainless steel, epoxy adhesive, or other materials warranted by manufacturer to be noncorrosive and compatible with aluminum window members, trim, hardware, anchors, and other components.

1. Reinforcement: Where fasteners screw anchor into aluminum less than 0.125 inch thick, reinforce interior with aluminum or nonmagnetic stainless steel to receive screw threads, or provide standard, noncorrosive, pressed-in, splined grommet nuts.
2. Exposed Fasteners: Unless unavoidable for applying hardware, do not use exposed fasteners. For application of hardware, use fasteners that match finish of member or hardware being fastened, as appropriate.

C. Anchors, Clips, and Accessories: Aluminum, nonmagnetic stainless steel, or zinc-coated steel or iron complying with ASTM B 633 for SC 3 severe service conditions; provide sufficient strength to withstand design pressure indicated.

D. Reinforcing Members: Aluminum, nonmagnetic stainless steel, or nickel/chrome-plated steel complying with ASTM B 456 for Type SC 3 severe service conditions, or zinc-coated steel or iron complying with ASTM B 633 for SC 3 severe service conditions; provide sufficient strength to withstand design pressure indicated.

E. Compression-Type Weather Stripping: Provide compressible weather stripping designed for permanently resilient sealing under bumper or wiper action and for complete concealment when aluminum window is closed.

1. Weather-Stripping Material: Elastomeric cellular preformed gaskets complying with ASTM C 509.
2. Weather-Stripping Material: Dense elastomeric gaskets complying with ASTM C 864.
3. Weather-Stripping Material: Manufacturer's standard system and materials complying with AAMA/WDMA 101/I.S.2/NAFS.

F. Replaceable Weather Seals: Comply with AAMA 701/702.

G. Sealant: For sealants required within fabricated windows, provide window manufacturer's standard, permanently elastic, nonshrinking, and nonmigrating type recommended by sealant manufacturer for joint size and movement.

2.3 WINDOWS

A. Window Type: Fixed and projected. See Drawings.

B. AAMA/WDMA Performance Requirements: Provide aluminum windows of performance indicated that comply with AAMA/WDMA 101/I.S.2/NAFS unless more stringent performance requirements are indicated.

1. Performance Class: HC.

C. Condensation-Resistance Factor (CRF): Provide aluminum windows tested for thermal performance according to AAMA 1503, showing a CRF of 52.

D. Thermal Transmittance: Provide aluminum windows with a whole-window, U-factor maximum indicated at 15-mph exterior wind velocity and winter condition temperatures when tested according to AAMA 1503.

1. U-Factor: 0.60 Btu/sq. ft. x h x deg F or less.

E. Solar Heat-Gain Coefficient (SHGC): Provide aluminum windows with a whole-window SHGC maximum of 0.40, determined according to NFRC 200 procedures.

F. Sound Transmission Class (STC): Provide glazed windows rated for not less than 35 STC when tested for laboratory sound transmission loss according to ASTM E 90 and determined by ASTM E 413.

G. Air Infiltration: Maximum rate not more than indicated when tested according to AAMA/WDMA 101/I.S.2/NAFS, Air Infiltration Test.

1. Maximum Rate: 0.1 cfm/sq. ft. of area at an inward test pressure of 6.24 lbf/sq. ft.

H. Water Resistance: No water leakage as defined in AAMA/WDMA referenced test methods at a water test pressure equaling that indicated, when tested according to AAMA/WDMA 101/I.S.2/NAFS, Water Resistance Test.

1. Test Pressure: 15 percent of positive design pressure, but not less than 2.86 lbf/sq. ft. or more than 15 lbf/sq. ft..

I. Forced-Entry Resistance: Comply with Performance Grade 40 requirements when tested according to ASTM F 588.

J. Life-Cycle Testing: Test according to AAMA 910 and comply with AAMA/WDMA 101/I.S.2/NAFS.

K. Operating Force and Auxiliary (Durability) Tests: Comply with AAMA/WDMA 101/I.S.2/NAFS for operating window types indicated.

2.4 GLAZING

A. Glass and Glazing Materials: Refer to Division 08 Section "Glazing" for glass units and glazing requirements applicable to glazed aluminum window units.

2.5 HARDWARE

A. General: Provide manufacturer's standard hardware fabricated from aluminum, stainless steel, carbon steel complying with AAMA 907, or other corrosion-resistant material compatible with aluminum; designed to smoothly operate, tightly close, and securely lock aluminum windows, and sized to accommodate sash or ventilator weight and dimensions. Do not use aluminum in frictional contact with other metals. Where exposed, provide solid bronze, extruded, cast, or wrought aluminum, die-cast zinc with special coating finish or nonmagnetic stainless steel.

B. Projected Windows: (Project In) Provide the following operating hardware:

1. Hinge: Concealed four- or six-bar friction hinge with adjustable-slide friction shoe; two per ventilator.
2. Lock: Cam-action, sweep lock handle with strike; two per ventilator.
3. Lock: Pole-operated, cam-action, sweep lock handle and strike (For operables 6’ A.F.F.)

2.6 INSECT SCREENS

A. General: Design windows and hardware to accommodate screens in a tight-fitting, removable arrangement, with a minimum of exposed fasteners and latches. Fabricate insect screens to fully integrate with window frame. Locate screens on outside of window and provide for each operable exterior sash or ventilator.

1. Aluminum Tubular Frame Screens: Comply with SMA 1004, "Specifications for Aluminum Tubular Frame Screens for Windows," Monumental M-32 class.
2. Comply with SMA 1004, "Specifications for Aluminum Tubular Frame Screens for Windows," for minimum standards of appearance, fabrication, attachment of screen fabric, hardware, and accessories unless more stringent requirements are indicated.

B. Aluminum Insect Screen Frames: Manufacturer's standard aluminum alloy complying with SMA 1004. Fabricate frames with mitered or coped joints or corner extrusions, concealed fasteners, adjustable rollers, and removable PVC spline/anchor concealing edge of frame.

1. Aluminum Tubular Framing Sections and Cross Braces: Roll formed from aluminum sheet with minimum wall thickness as required for class indicated.
2. Finish: Match aluminum window members.

C. Aluminum Wire Fabric: 18-by-16 mesh of 0.011-inch- diameter, coated aluminum wire.

1. Wire-Fabric Finish: Natural bright.

D. Weep Hole Covers: Provide manufacturer’s standard ‘sponge’ like material to cover the screen weep holes to prevent bugs from getting through.

2.7 FABRICATION

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

B. Fabricate aluminum windows that are reglazable without dismantling sash or ventilator framing.

C. Thermally Improved Construction: Fabricate aluminum windows 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.

1. Provide thermal-break construction that has been in use for not less than three years and has been tested to demonstrate resistance to thermal conductance and condensation and to show adequate strength and security of glass retention.
2. Provide thermal barriers tested according to AAMA 505; determine the allowable design shear flow per the appendix in AAMA 505.
3. Provide hardware with low conductivity or nonmetallic material for hardware bridging thermal breaks at frame or vent sash.

D. Weather Stripping: Provide full-perimeter weather stripping for each operable sash and ventilator.

1. Horizontal-Sliding Windows: Provide operable sash with a double row of sliding weather stripping in horizontal rails and single- or double-row weather stripping in meeting or jamb stiles, as required to meet specified performance requirements. Provide compression-type weather stripping at perimeter of each movable panel where sliding-type weather stripping is not appropriate.
2. Vertically Pivoted Windows: Provide double-row weather stripping.

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

F. Provide water-shed members above side-hinged ventilators and similar lines of natural water penetration.

G. Mullions: Provide mullions and cover plates as shown, 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 loads of window units.

H. Subframes: Provide subframes with anchors for window units as shown, of profile and dimensions indicated but not less than 0.062-inch- thick extruded aluminum. Miter or cope corners, and weld and dress smooth with concealed mechanical joint fasteners. Finish to match window units. Provide subframes capable of withstanding design loads of window units.

I. Factory-Glazed Fabrication: Glaze aluminum windows in the factory where practical and possible for applications indicated. Comply with requirements in Division 08 Section "Glazing" and with AAMA/WDMA 101/I.S.2/NAFS.

J. Glazing Stops: Provide snap-on glazing stops coordinated with Division 08 Section "Glazing" and glazing system indicated. Provide glazing stops to match sash and ventilator frames.

2.8 FINISHES, GENERAL

A. Comply with NAAMM's "Metal Finishes Manual for Architectural and Metal Products" 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.

2.9 ALUMINUM FINISHES

A. Finish designations prefixed by AA comply with the system established by the Aluminum Association for designating aluminum finishes.

B. Class I, Clear Anodic Finish: AA-M12C22A41 (Mechanical Finish: nonspecular as fabricated; Chemical Finish: etched, medium matte; Anodic Coating: Architectural Class I, clear coating 0.018 mm or thicker) complying with AAMA 611.

PART 3 - EXECUTION

3.1 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 work. Verify rough opening dimensions, levelness of sill plate, and operational clearances. Examine wall flashings, vapor retarders, water and weather barriers, and other built-in components to ensure a coordinated, weathertight window installation.

1. Masonry Surfaces: Visibly dry and free of excess mortar, sand, and other construction debris.
2. Wood Frame Walls: Dry, clean, sound, well nailed, free of voids, and without offsets at joints. Ensure that nail heads are driven flush with surfaces in opening and within 3 inches of opening.
3. Metal Surfaces: Dry; clean; free of grease, oil, dirt, rust, corrosion, and welding slag; without sharp edges or offsets at joints.
4. Proceed with installation only after unsatisfactory conditions have been corrected.

3.2 INSTALLATION

A. Comply with Drawings, Shop Drawings, and manufacturer's written instructions for installing windows, hardware, accessories, and other components.

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.

C. Set sill members in bed of sealant or with gaskets, as indicated, for weathertight construction.

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

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

F. Connect automatic operators to building electrical system.

3.3 ADJUSTING, CLEANING, AND PROTECTION

A. Adjust operating sashes and ventilators, screens, hardware, operators, and accessories for a tight fit at contact points and weather stripping for smooth operation and weathertight closure. Lubricate hardware and moving parts.

B. Clean aluminum surfaces immediately after installing windows. Avoid damaging protective coatings and finishes. Remove excess sealants, glazing materials, dirt, and other substances.

C. Clean factory-glazed glass immediately after installing windows. Comply with manufacturer's written recommendations for final cleaning and maintenance. Remove nonpermanent labels, and clean surfaces.

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

E. Protect window surfaces from contact with contaminating substances resulting from construction operations. In addition, monitor window surfaces adjacent to and below exterior concrete and masonry surfaces during construction for presence of dirt, scum, alkaline deposits, stains, or other contaminants. If contaminating substances do contact window surfaces, remove contaminants immediately according to manufacturer's written recommendations.

3.4 DEMONSTRATION

A. Engage a factory-authorized service representative to train Owner's maintenance personnel to adjust, operate, and maintain window operating system. Refer to Division 01 Section "Demonstration and Training."

END OF SECTION 085113

Addendum #1, Item #4

SECTION 086200 - UNIT SKYLIGHTS

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

A. Section Includes:

1. Unit skylights mounted on prefabricated curbs.

1.3 PREINSTALLATION MEETINGS

A. Preinstallation Conference: Conduct conference at Project site.

1.4 ACTION SUBMITTALS

A. Product Data: For each type of unit skylight.

1. Include construction details, material descriptions, dimensions of individual components and profiles, and finishes for unit skylights.
2. Motors: Show nameplate data, power requirements, ratings, characteristics, and mounting arrangements.

B. Shop Drawings: For unit skylight work.

1. Include plans, elevations, sections, details, and connections to supporting structure and other adjoining work.
2. Motor Operators: Show locations and details for installing operator components, switches, and controls. Indicate motor size, electrical characteristics, drive arrangement, mounting, and grounding provisions.

    a. Wiring Diagrams: For power, signal, and control wiring for electric motors of operable unit skylights.

3. Multiple Units: Methods of connection and structural support for multiple units clustered together.

C. Product Schedule: For unit skylights.

1.5 INFORMATIONAL SUBMITTALS

A. Qualification Data: For qualified Installer and manufacturer.

B. Product Test Reports: For each type and size of unit skylight, for tests performed within the last four years by a qualified testing agency. Test results based on testing of smaller unit skylights than specified will not be accepted.

C. Field quality-control reports.

D. Sample Warranty: For special warranty.

1.6 CLOSEOUT SUBMITTALS

A. Maintenance Data: For unit skylights and unit skylight operating system to include in maintenance manuals.

1.7 QUALITY ASSURANCE

A. Manufacturer Qualifications: A manufacturer capable of fabricating unit skylights that meet or exceed performance requirements indicated and of documenting this performance by inclusion in lists and by labels, test reports, and calculations.

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

1.8 WARRANTY

A. Special Warranty: Manufacturer agrees to repair or replace components of unit skylights that fail in materials or workmanship within specified warranty period.

1. Failures include, but are not limited to, the following:

a. Uncontrolled water leakage.
b. Deterioration of metals, metal finishes, and other materials beyond normal weathering.
c. Yellowing of acrylic glazing.
d. Breakage of polycarbonate glazing.
e. Deterioration of insulating-glass hermetic seal.

2. Warranty Period: Ten years from date of Substantial Completion.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

A. Basis-of-Design: Solatube – SolaMaster Series 750 DS-C, 21” with the following:

1. Roof Dome Assembly: Transparent, UV and impact resistant dome with flashing base supporting dome and top of tube.

a. Outer Dome Glazing: Type DA, 0.125 inch minimum thickness injection molded acrylic classified as CC2 material; UV inhibiting (100 percent UV C, 100 percent UV B and 98.5 percent UV A), impact modified acrylic blend.

1) Raybender 3000: Variable prism optic molded into outer dome to capture low angle sunlight and limit high angle sunlight.

b. Inner Dome Glazing: Type DAI, 0.115 inch minimum thickness acrylic classified as CC2 material.

2. Roof Flashing Base:

a. One Piece: One piece, seamless, leak-proof flashing functioning as base support for dome and top of tube. Sheet steel, corrosion resistant conforming to ASTM A 653/A 653M or ASTM A463/A 463M or AST A792/A 792M, 0.028 inch thick.

1) Base Style: Type F11, Self-Mounted, 11 inches high with Membrane Counter-Flashing.

b. Flashing Insulator: Type FI, Thermal isolation material for use under flashing types; Type F11.
c. Curb Insulator: Type CI, Thermal isolation material.
d. Curb Cap Insulation: Type CCI, Nominal 1 inch thick thermal insulation pad. Rated R-6 (OFxft2xhr/Btu) Insulation - Polyisocyanurate foam. Type-1 Class-1 per ASTM C 1289; UL 1715.

3. Reflective Tubes: Aluminum sheet, thickness 0.018 inch.

a. General: Spectralight Infinity with Cool Tube Technology. Specular reflectance greater than 99 percent for the Visible Light spectrum (400 nm to 760 nm) and less than 20 percent reflectance for Infrared (IR) wavelengths longer than 980nm.

4. Diffuser Assemblies for Tubes Penetrating Ceilings: Solatube Model 750 DS-C.

a. Ceiling mounted box transitioning from round tube to square ceiling assembly, supporting light transmitting surface at bottom termination of tube; square frame to fit standard suspended ceiling grids (2’x2’).
b. Transition Box: Manufacturers Standard, round-to-square transition box.
c. Lens: Type L1 OptiView Fresnel lens, per ASTM E 283.

5. Accessories:

a. Local Dimmer Control: Provided with dimmer switch and cable. Each skylight to have an individually controlled dimmer/switch.

1) Daylight Dimmer: Type D Electro-mechanically actuated daylight valve; for universal input voltages ranging between 90 and 277 V at 50 or 60 Hz; maximum current draw of 50 ma per unit; controlled by low voltage, series Type T02: circuited, 4 conductor, size 22 AWG when total aggregate circuit runs are under 200 feet or size 18 AWG when total aggregate circuit runs are under 500 feet; providing daylight output between 2 and 100 percent. Provided with dimmer switch and cable.
2) Switch: Type SW, Manufacturer-specific low voltage DC DP/DT switch (white) required to operate Daylight Dimmer.

2.2 PERFORMANCE REQUIREMENTS

A. Unit Skylight 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.

B. Thermal Transmittance: NFRC 100 maximum U-factor of 0.51 Btu/sq. ft. x h x deg F.

C. Solar Heat-Gain Coefficient (SHGC): NFRC 200 maximum SHGC of 0.19.

D. Windborne-Debris-Impact Resistance: Provide unit skylights that pass basic protection testing requirements in ASTM E 1996 when tested according to ASTM E 1886.

E. Electrical Components, Devices, and Accessories: Listed and labeled as defined in NFPA 70, by a qualified testing agency, and marked for intended location and application.

2.3 ACCESSORY MATERIALS

A. Fasteners: Same metal as metal being fastened, nonmagnetic stainless steel, or other noncorrosive metal as recommended by manufacturer. Finish exposed fasteners to match material being fastened.

1. Where removal of exterior exposed fasteners might allow access to building, provide non-removable fastener heads.

B. Bituminous Coating: Cold-applied asphalt mastic, compounded for 15-mil dry film thickness per coat.

2.4 ALUMINUM FINISHES

A. Mill Finish: Manufacturer's standard.

B. Clear Anodic Finish: AAMA 611, AA-M12C22A41, Class I, 0.018 mm or thicker.

PART 3 - EXECUTION

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

3.2 INSTALLATION

A. Coordinate installation of unit skylight with installation of substrates, vapor retarders, roof insulation, roofing membrane, and flashing as required to ensure that each element of the Work performs properly and that combined elements are waterproof and weathertight.

B. Comply with recommendations in AAMA 1607 and with manufacturer's written instructions for installing unit skylights.

C. Install unit skylights level, plumb, and true to line, without distortion.

D. Anchor unit skylights securely to supporting substrates.

E. Where aluminum surfaces of unit skylights will contact another metal or corrosive substrates, such as preservative-treated wood, apply bituminous coating on concealed metal surfaces or provide other approved permanent separation recommended in writing by unit skylight manufacturer.

3.3 FIELD QUALITY CONTROL

A. After completion of installation and nominal curing of sealant and glazing compounds but before installation of interior finishes, test for water leaks according to AAMA 501.2.

B. Perform test for total area of each unit skylight.

C. Work will be considered defective if it does not pass tests and inspections.

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

E. Prepare test and inspection reports.

3.4 CLEANING

A. Clean exposed unit skylight surfaces according to manufacturer's written instructions. Touch up damaged metal coatings and finishes.

B. Remove excess sealants, glazing materials, dirt, and other substances.

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

D. Protect unit skylight surfaces from contact with contaminating substances resulting from construction operations.

E. Unit Skylight Operating System: Clean and lubricate joints and hardware. Adjust for proper operation.

3.5 DEMONSTRATION

A. Train Owner's maintenance personnel to adjust, operate, and maintain unit skylight operating system.

END OF SECTION 086200

CITY OF Billings FACILITIES

Addendum #1, Item #5

EXHIBIT P

PREVAILING WAGE FOR CONSTRUCTION SERVICES

NOTE: PREVAILING WAGE INFORMATION WILL BE INCLUDED IN FINAL CONTRACT IF AMOUNT OF CONTRACT EXCEEDS $25,000; FOR INFORMATION OR TO REVIEW THE 2021 PREVAILING WAGE DOCUMENT FOR CONSTRUCTION SERVICES, GO TO: http://erd.dli.mt.gov/labor-standards/state-prevailing-wage-rates and follow the links.

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JOHN CATERINO	CITY OF BILLINGS		

Addendum #1, Item #6

QUEST SERVICES CORP
ENGINEERED VALUE

EXHIBIT "A" Quantity Sheet

Project: Hail Repair at Miscellaneous City Buildings — **Willett Pump**
Architect:
Date: August 18, 2021

SPEC NO	DESCRIPTION	BIDDER QTY's	INS CO QTY	UNIT	REMARKS
	DIVISION 7 - THERMAL & MOISTURE PROTECTION				
	ROOFING				
	Willet Pump Station				
	Demo, Furnish & Install Parapet Coping & Flashings		190	lf	
	Demo, Furnish & Install Vent Cap		10	ea	
	~~Demo, Furnish & Install 4' x 4' Skylight~~	-	~~3~~	~~ea~~	Work Already Completed
	SUBTOTAL - ROOFING				
	TOTAL - DIVISION 7				

Sign as Acknowledgment of Quantity Form **Date**

By: _____ _____