

# Request for Proposals

## Central Davis Sewer District

### **Metal Building Supplier Proposal**

#### General Description:

Central Davis Sewer District is requesting proposals for parties interested in providing an industrial grade metal building, approximately 80 feet by 40 feet in dimension with a general configuration shown on the drawings in Attachment #1. The building will house a motor control center and storage area for electrical equipment.

#### Buildings specifics:

1. The building walls and roof shall be constructed using insulated clad panels.
2. All panel surfaces shall be coated so that they are corrosion resistant.
3. The building shall include openings for garage doors and man doors as shown on the drawings.
4. The basic design and exterior appearance shall be consistent with other buildings on site.
5. The building supplier will be required to submit reaction calculations to allow for design for appropriate foundations.
6. The building design must be stamped by a structural engineer certified in the state of Utah.
7. The building must be designed to meet all local conditions as specified by Kaysville City, UT. Including snow loads and wind loads.

The proposal shall include sketches of the proposed building, specifications for materials used and a firm total price for supply of the materials.

Attachment #2 contains general building and insulated specifications for the building.

#### Required Knowledge and Skills:

- 1) The successful supplier will have broad experience in building design and supply in Utah.
- 2) The building supplier must be able to meet a time schedule agreed to with the District.
- 3) The successful supplier will have more than 10 years of experience in the local market.

## **Rating of Proposals**

All proposals will be rated by the District based on its assessment of their ability to provide the required metal building as shown in the provided drawings and specifications. The District will consider the durability of the proposed building based on the District's assessment of the proposal. In addition, the District will use references to determine the suitability of the proposed supplier with special emphasis on having successfully worked with the District in the past.

The District may consider as incomplete, any proposal not prepared and submitted in accordance with the provisions hereof and may waive any informalities or reject such proposal for lack of formality.

The District reserves the right to accept or reject all proposals, or separable portions thereof, and to waive any minor irregularity, technicality, or omission if the District determines that doing so shall serve the District's best interests. The District may reject any proposal not submitted in the manner specified by the solicitation documents.

### **Timing:**

Proposals must be received by June 3, 2026, at 10:30 am.

### **Proposal Submission:**

Proposals should be submitted to:

Jill S. Jones, General Manager  
jillj@cdsewerut.gov  
2200 South Sunset Drive,  
Kaysville UT 84037

Proposals may be submitted electronically or on paper.

For additional information, please contact Jill S. Jones or Manjot K. Masson at 801-451-2190

# Attachment 1: Drawings

Plot Date: 5/12/2026 2:05 PM Plotted By: Jason Miller  
 Date Created: 5/17/26 JUB.COM\CENTRAL\CLIENTS\07-CENTRAL\DAVIS\PROJECTS\RP-26-0081 - ELECTRICAL BUILDING DESIGN\DESIGN\DWG\SHEET RP-26-0081 - SITEPLAN\EXHIBIT.DWG



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 Kaysville, Utah 84037  
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**PRELIMINARY PLANS**  
**NOT FOR CONSTRUCTION**

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NO.	REVISION	DESCRIPTION	BY	DATE

**ELECTRICAL BUILDING**  
**CENTRAL DAVIS SEWER DISTRICT**  
**SITE PLAN EXHIBIT**

FILE: RP-26-0081 - SITEPLAN\EXHIBIT  
 JUB PROJ. #: RP-26-0081  
 DRAWN BY: JDM  
 DESIGN BY: BKW  
 CHECKED BY: BKW  
 ONE INCH  
 AT FULL SIZE, IF NOT ONE INCH SCALE ACCORDINGLY  
 LAST UPDATED: 5/11/2025  
**SHEET NUMBER:**  
**C-1**





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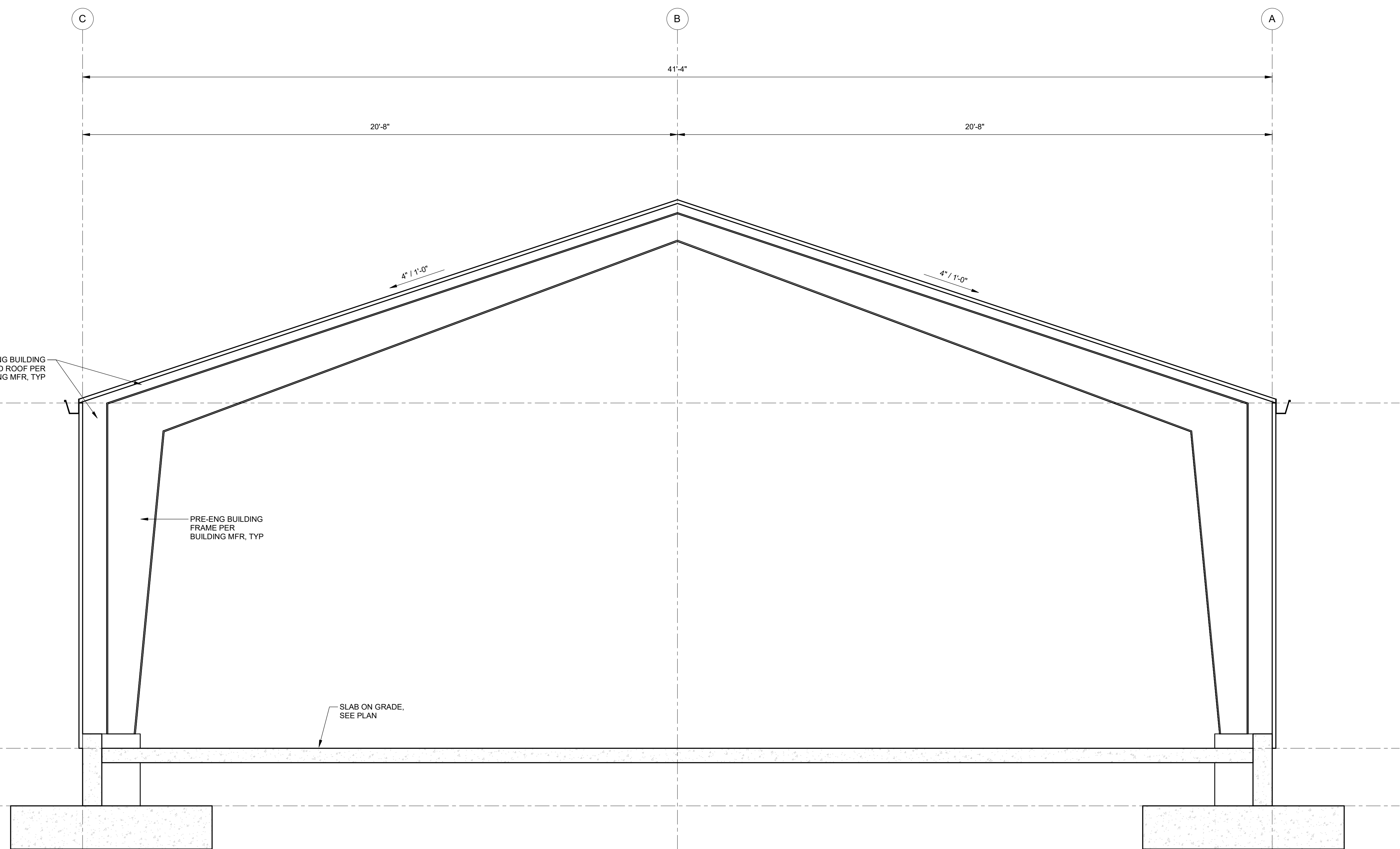
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ELECTRICAL BUILDING  
CENTRAL DAVIS SEWER DISTRICT  
STRUCUTRAL (S)  
SECTIONS

FILE:  
JUB PROJ. # RP-26-00681  
DRAWN BY: Author  
DESIGN BY: Designer  
CHECKED BY: Checker  
ONE INCH  
AT FULL SIZE, IF NOT ONE  
INCH SCALE ACCORDINGLY  
LAST UPDATED:  
DRAWING:  
S-301



TOW  
112'-0"  
12'-0"  
FINISH FLOOR  
100'-0"  
2'-0"  
TOF  
98'-0"

PRE-ENG BUILDING  
WALL AND ROOF PER  
BUILDING MFR, TYP

PRE-ENG BUILDING  
FRAME PER  
BUILDING MFR, TYP

SLAB ON GRADE,  
SEE PLAN

4" / 1'-0"

4" / 1'-0"

41'-4"

20'-8"

20'-8"

1 SECTION  
S-101 SCALE: 1/2" = 1'-0"

Autodesk Docs://Central Davis PEMBRP-26-00681\_S.rvt



## Attachment 2: Specifications

SECTION 13150  
METAL BUILDING SYSTEMS

PART 1 GENERAL

1.1 SUMMARY

- A. Section includes pre-engineered, shop fabricated structural steel building frame; metal wall and sloped roof system including trim and exterior doors, windows, and louvers.
- B. Related Sections:
  - 1. Section 03100 – Concrete Forms and Accessories
  - 2. Section 07900 – Joint Sealers
  - 3. Section 09900 – Paints and Coatings

1.2 REFERENCES

- A. American Institute of Steel Construction (AISC)
  - 1. AISC S335 - Specification for Structural Steel Buildings Allowable Stress Design, and Plastic Design.
  - 2. AISC S342L - Load and Resistance Factor Design Specification for Structural Steel Buildings.
- B. ASTM International:
  - 1. ASTM A36/A36M - Standard Specification for Carbon Structural Steel.
  - 2. ASTM A307 - Standard Specification for Carbon Steel Bolts and Studs, 60 000 PSI Tensile Strength.
  - 3. ASTM A325 - Standard Specification for Structural Bolts, Steel, Heat Treated, 120/105 ksi Minimum Tensile Strength.
  - 4. ASTM A490 - Standard Specification for Heat-Treated Steel Structural Bolts, 150 ksi Minimum Tensile Strength.
  - 5. ASTM A500/A500M - Standard Specification for Cold-Formed Welded and Seamless Carbon Steel Structural Tubing in Rounds and Shapes.
  - 6. ASTM A501 - Standard Specification for Hot-Formed Welded and Seamless Carbon Steel Structural Tubing.
  - 7. ASTM A529/A529M - Standard Specification for High-Strength Carbon-Manganese Steel of Structural Quality.
  - 8. ASTM A572/A572M - Standard Specification for High-Strength Low-Alloy Columbium-Vanadium Structural Steel.
  - 9. ASTM C665 - Standard Specification for Mineral-Fiber Blanket Thermal Insulation for Light Frame Construction and Manufactured Housing.
  - 10. ASTM C991 - Standard Specification for Flexible Glass Fiber Insulation for Pre-Engineered Metal Buildings.
  - 11. ASTM C1107/C1107M - Standard Specification for Packaged Dry, Hydraulic-Cement Grout (Nonshrink).

12. ASTM C1371 - Standard Test Method for Determination of Emittance of Materials Near Room Temperature Using Portable Emisometers.
13. ASTM C1549 - Standard Test Method for Determination of Solar Reflectance Near Ambient Temperature Using a Portable Solar Reflectometer.
14. ASTM E84 - Standard Test Method for Surface Burning Characteristics of Building Materials.
15. ASTM E96/E96M - Standard Test Methods for Water Vapor Transmission of Materials.
16. ASTM E408 - Standard Test Methods for Total Normal Emittance of Surfaces Using Inspection-Meter Techniques.
17. ASTM E903 - Standard Test Method for Solar Absorptance, Reflectance, and Transmittance of Materials Using Integrating Spheres.
18. ASTM E1918 - Standard Test Method for Measuring Solar Reflectance of Horizontal and Low-Sloped Surfaces in the Field.
19. ASTM E1980 - Standard Practice for Calculating Solar Reflectance Index of Horizontal and Low-Sloped Opaque Surfaces.
20. ASTM E1996 - Standard Specification for Performance of Exterior Windows, Curtain Walls, Doors and Impact Protective Systems Impacted by Windborne Debris in Hurricanes.

C. American Welding Society:

1. AWS A2.4 - Standard Symbols for Welding, Brazing, and Nondestructive Examination.
2. AWS D1.1 - Structural Welding Code - Steel.

D. Metal Building Manufacturers Association:

1. MBMA - Low Rise Building Systems Manual.

E. SSPC: The Society for Protective Coatings:

1. SSPC - Steel Structures Painting Manual.
2. SSPC Paint 20 - Zinc-Rich Primers (Type I - Inorganic and Type II - Organic).

F. International Building Code (Current Edition)

G. International Energy Conservation Manual (Current Edition)

### 1.3 DESIGN REQUIREMENTS

- A. Structures shall be designed in accordance with the requirements of the "International Building Code", "American Institute of Steel Construction" specifications, "American Iron and Steel Institute" specifications, and "Metal Building Manufacturers Association – Design Practices Manual". The latest edition of each of these publications shall apply.
- B. Design members to withstand dead load, snow load, vertical and horizontal seismic loads, and design loads due to pressure and suction of wind calculated

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in accordance with ASCE 7-16 and IBC 2018. Standard design loads shall be as follows:

1. Occupancy or Use: IBC Table 1607.1: Storage Warehouses
  2. Occupancy Category: IBC Table 1604.5: III
  3. Dead Load:
    - a. Self-Weight
    - b. Suspended ceiling at electrical room: 10 psf
    - c. Collateral Load: 5 psf
  4. Roof Design Load:
    - a. Roof Live Load 20 psf
    - b. Roof Snow Load 30 psf (Flat)
      - 1) Ground Snow Load, Pg: 32 psf
      - 2) Importance Factor, Is: 1.10
      - 3) Unbalanced Snow per ASCE-7, Chapter 7
      - 4) Drifts on Lower Roofs per ASCE-7, Chapter 7
  5. Wind Load:
    - a. Basic Wind Speed: 140 mph
    - b. Site Exposure: C
    - c. Importance Factor: 1.00
  6. Seismic Load:
    - a. Short Period Spectral Response Acceleration, Ss: 1.311
    - b. 1-Second Spectral Response Acceleration, S1: 0.477
    - c. Importance factor, Ie: 1.25
    - d. Soil Class: D
    - e. Seismic Design Category: D
- C. Design members to support mechanical and electrical equipment.
- D. Design members to support suspended ceiling at electrical room area

#### 1.4 SUBMITTALS

- A. Submit under provision of Section 01300.
- B. Shop Drawings: Indicate assembly dimensions, locations of structural members, connections, attachments, opening, cambers, and loads; wall and roof system dimensions, panel layout, general construction details, anchorages, and method of anchorage; framing anchor bolt settings, sizes, and locations from datum, and foundation loads; indicate welded connections with AWS A2.4 welding symbols; indicate net weld lengths; provide professional seal and signature by a Utah State Registered Professional Engineer.

**Metal Building Manufacturer shall submit final sealed reaction package to be used for the foundation design within two (2) weeks from award.**

- C. Provide product information and manuals for all materials and equipment associated with the metal building system for approval.
- D. Provide the manufacturers metal building system erection and installation manual.

#### 1.5 QUALITY ASSURANCE

- A. Manufacturer Qualifications: A qualified manufacturer.
  - 1. Accreditation: Manufacturer's facility accredited according to the International Accreditation Service's AC472, "Accreditation Criteria for Inspection Programs for Manufacturers of Metal Building Systems."
  - 2. Engineering Responsibility: Preparation of comprehensive engineering analysis and Shop Drawings by a professional engineer who is legally qualified to practice in jurisdiction where Project is located.
  - 3. Manufacturer shall have a minimum of five (5) years' experience in the factory fabrication of steel buildings.
  - 4. Steel fabrication must be performed on the premises of a fabricator registered and approved to perform such work without special inspection. At completion of fabrication, the approved fabricator shall submit a certificate of compliance to the building official stating that the work was performed in accordance with the approved construction documents.
- B. Welding Qualifications: Qualify procedures and personnel according to the following:
  - 1. AWS D1.1/D1.1M, "Structural Welding Code - Steel."
  - 2. AWS D1.3, "Structural Welding Code - Sheet Steel."
- C. Perform Work in accordance with AISC S335, AISC S342L, and MBMA Low Rise Building Systems Manual.
- D. Perform Work in accordance with Kaysville City minimum design requirements.
- E. Maintain one copy of each document on site.

#### 1.6 DELIVERY, STORAGE, AND HANDLING

- A. Deliver components, sheets, panels, and other manufactured items so as not to be damaged or deformed. Package metal panels for protection during transportation and handling.
- B. Unload, store, and erect metal panels in a manner to prevent bending, warping, twisting, and surface damage.

- C. Stack metal panels horizontally on platforms or pallets, covered with suitable weathertight and ventilated covering. Store metal panels to ensure dryness, with positive slope for drainage of water. Do not store metal panels in contact with other materials that might cause staining, denting, or other surface damage.

## PART 2 PRODUCTS

### 2.1 SYSTEM DESCRIPTION

- A. Provide a complete, integrated set of mutually dependent components and assemblies that form a metal building system capable of withstanding structural and other loads, thermally induced movement, and exposure to weather without failure or infiltration of water into building interior.

### 2.2 PRIMARY FRAMING:

- A. Rigid Clear Span: Solid-member, structural-framing system without interior columns.
- B. End Wall Framing: Manufacturer's standard, for buildings not required to be expandable, consisting of primary frame, capable of supporting one-half of a bay design load, and end wall columns.
- C. Fabricate members in accordance with AISC Specification for plate, bar, tube, or rolled structural shapes.
- D. Anchorage: Framing shall be anchored to concrete foundations at the base of frame columns with cast in place anchor bolts furnished and engineered by the manufacturer to resist the design loads produced by the building frame.
- E. All metal building structural steel frames, columns, bolts, X-bracing, portal frames, washers, hillside washers...etc are to be hot dipped galvanized.

### 2.3 SECONDARY FRAMING

- A. Purlins and Girts: Manufacturer's standard purlins and girts shaped to receive siding or roofing.
- B. Provide framing for door, window, louver, skylight, ventilator, or other miscellaneous openings.
- C. All purlins and girts are to have G90 zinc coating

### 2.4 PRIMARY AND SECONDARY FRAMING MATERIAL SPECIFICATIONS

- A. Plates and bars used in fabricating automatically continuous welded beams and columns: Materials shall all conform to the chemistry requirements of ASTM A-36 modified minimum YP 50 ksi.

- B. Structural Pipes: Materials shall all conform to the chemistry requirements of ASTM A-36 minimums.
- C. Cold Formed Steel: Steel used to form purlins and girts shall be hot rolled steel. Materials shall all conform to the chemistry requirements of ASTM A607 grade 50 or ASTM A570 grade with G90 zinc coating.

## 2.5 LATERAL BRACING

- A. X-bracing, portal frames, wall panels may be used for laterally bracing the building for wind and seismic loads.
- B. Diaphragm strength of wall panel may be used for lateral bracing in end walls, if sufficient wall panel is available. Cable or rod bracing may be used to resist forces, sized to withstand required loading.
- C. Galvanized Cable: meeting ASTM A475, sized to withstand required loading.
- D. Adjustable Rod: meeting ASTM A36; ASTM A572 Grade D; or ASTM A529, sized to withstand required loading.
- E. Wind Columns: fabricated from shop welded, built-up steel plates, meeting ASTM A36, sized to withstand required loading, where seismic forces will allow.
- F. Portal Frames: fabricated from shop welded, built-up steel plates, meeting ASTM A36, sized to withstand required loading.

## 2.6 ROOF AND WALL COVERING

- A. Roof covering: 4" Insulated Metal Panels. See plans and specifications.
- B. Wall covering: 3" Insulated Metal Panels. See plans and specifications.
- C. Roof and wall panels shall be fastened to framing members per manufacturers recommendations.
- D. Soffit Panels: See plans and specifications.
- E. Internal and External Corners: Same material thickness and finish as adjacent material, profile shop cut and factory mitered to required angles.
- F. Expansion joints: not used.
- G. Flashings, Closure Pieces, and Fascia: Same material and finish as adjacent material.
- H. Fasteners: To maintain load requirements and weather tight installation, same finish as cladding, non-corrosive.

## 2.7 WALKDOORS AND WINDOWS

- A. Walk-in Doors and windows: See plans and specifications for locations and requirements.

## 2.8 GUTTER, TRIM AND DOWNSPOUTS

- A. Fabricate of same material and finish as roofing metal.
- B. Form gutters and downspouts of profile and size to collect and remove water. Fabricate with connection pieces.
- C. Form sections in maximum possible lengths. All gutter splices shall be riveted and caulked to provide leak-proof joints. Hem exposed edges.
- D. Fabricate support straps of same material and finish as roofing metal, color as selected.

## 2.9 SEALANTS

- A. Closure Strips: Strips shall be constructed of semi-rigid polyethylene foam and shall match the standard panel.
- B. Tape Sealant: Ribbon mastic 3/32"x3/8" shall be provided for side and endlaps of panels where indicated.

## 2.10 FACTORY FINISHING

- A. Framing Members: Clean, prepare, and hot dip galvanize. Do not galvanize surfaces to be field welded.
- B. Galvanizing for Nuts, Bolts and Washers: ASTM A153
- C. Interior Surfaces of Components and Accessories: Precoated enamel on steel of color as selected from manufacturer's standard range.
- D. Exterior Surfaces of Components and Accessories: Precoated enamel on steel of color as selected from manufacturer's standard range.

## PART 3 EXECUTION

### 3.1 CONSTRUCTION REQUIREMENTS

- A. Immediately after receipt of the Notice of Award for the metal building system contract, coordinate with the Engineer to order the metal building system shop drawings and reaction package to minimize schedule delays for the building fabrication and delivery to the project site. The metal building system supplier shall provide final reaction package to the Engineer within two (2) weeks from notice of award.
- B. The Contractor shall complete construction of the metal building system in a manner that conforms with the requirements of the Drawings and the Specifications and in accordance with the building manufacturer's installation

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manual, using good workmanship practices, and applicable building regulations. The metal building system shall be erected and constructed by certified steel building installers.

- C. Coordinate anchor bolt layout with the construction of the concrete foundation to ensure and verify that the concrete foundation layout matches the metal building system layout for proper connection to foundation.
- D. Assemble metal building system materials and all specified components as per manufacturer's recommendations and to the specified code.

END OF SECTION

SECTION 07500  
INSULATED WALL PANELS

PART 1 GENERAL

1.1 SUMMARY

- A. Steel faced, polyurethane (polyisocyanurate) metal wall & roof panels.
- B. Accessories including fasteners, perimeter trim and penetration treatments.

1.2 REFERENCES

- A. American Architectural Manufacturers Association (AAMA)
  - 1. AAMA 501.2: Quality Assurance and Diagnostic Water Leakage Field Check of Installed Storefronts, Curtain Walls and Sloped Glazing Systems.
- B. American Society of Civil Engineers (ASCE)
  - 1. ASCE 7: Minimum Design Loads for Buildings and Other Structures.
  - 2. Uniform Static Air Pressure Difference
  - 3. ASTM E413: Classification for Rating Sound Insulation
  - 4. ASTM G153: Standard Practice for Operating Enclosed Carbon Arc Light Apparatus for Exposure of Nonmetallic Materials
  - 5. ASTM G154: Standard Practice for Operating Fluorescent Light Apparatus for UV Exposure of Nonmetallic Materials
- C. FM Global (FM)
  - 1. FM 4471; Approval Standard for Class 1 Panel Roofs
  - 2. Approval Standard 4880; Class 1 Fire Rating of Insulated Wall or Wall and Roof/Ceiling Panels, Interior Finish Materials or Coatings, and Exterior Wall Systems.
- D. 2018 International Building Code
- E. National Fire Protection Agency (NFPA)
  - 1. NFPA 259: Standard Test Method for Potential Heat of Building Materials.
  - 2. NFPA 285: Standard Fire Test Method for Evaluation of Fire Propagation Characteristics of Exterior Non-Load-Bearing Wall Assemblies Containing Combustible Components.
- F. Underwriters Laboratories
  - 1. UL 580; Tests for Uplift Resistance of Roof Assemblies

### 1.3 SUBMITTALS

- A. Refer to Section: 01330 Submittal Procedures
- B. Manufacturer current technical literature for each type of product.
- C. Shop Drawings: Submit detailed drawings and panel analysis showing:
  - 1. Profile
  - 2. Gauge of both exterior and interior sheet
  - 3. Location, layout and dimensions of panels
  - 4. Location and type of fasteners
  - 5. Shape and method of attachment of all trim
  - 6. Locations and type of sealants
  - 7. Installation sequence
  - 8. Coordination Drawings: Provide elevation drawings and building sections which show panels in relationship to required locations for structural support. Include panel details and details showing attachment to structural support.
  - 9. Other details as may be required for a weathertight installation
- D. Panel Analysis: Provide panel calculations to verify panels will withstand the design wind loads indicated without detrimental effects or deflection exceeding  $L/180$ . Include effects of thermal differential between the exterior and interior panel facings and resistance to fastener pullout. Panel manufacturer shall design panel connections for minimum wind loads per ASCE 7-10.
- E. Samples: Provide nominal 3 x 5 inch of each color indicated. Provide panel width by 8 inches long minimum.  
  
Miscellaneous Certifications:
  - 1. Submit documentation that products have been certified in accordance with ISO 14025.
- G. Quality Assurance Submittals
  - 1. Design Data, Test Reports: Provide manufacturer test reports indicating product compliance with requirements.
  - 2. Manufacturer Erection Instructions: Provide manufacturer's written installation instructions including proper material storage, material handling, installation sequence, panel location(s), and attachment methods, details and required trim and accessories.

### 1.4 ADMINISTRATIVE REQUIREMENTS

- A. Pre-installation meeting: Conduct a pre-installation meeting at the job site attended by Owner, Engineer, Manufacturer's Technical Representative, Panel Installer, and Contractors of related trades. Coordinate structural support requirements in relation to insulated roof and wall panel system, installation of

any separate air/water barriers, treatment of fenestration, and other requirements specific to the project.

## 1.5 QUALITY ASSURANCE

### A. Manufacturer Qualifications:

1. Manufacturer shall have a minimum of five (5) years experience in the production of insulated roof and wall panels. Manufacturer shall demonstrate past experience with examples of projects of similar type and exposure.
2. Manufacturer to be registered with a Program Operator with a Certified, Environmental Product Declaration, in conformance with ISO 14025, for Insulated Metal Panels.

### B. Installer Qualifications: Authorized by the manufacturer and the work shall be supervised and quality assured by a person having a minimum of five (5) years experience installing insulated roof and wall panels on similar type and size projects.

## 1.6 DELIVERY, STORAGE AND HANDLING

### A. Refer to Section 01600

### B. Deliver panel materials and components in manufacturer's original, unopened, undamaged packaging with identification labels intact.

### C. Store roof and wall panel materials on dry, level, firm, and clean surface. Stack no more than two bundles high. Elevate one end of bundle to allow moisture run-off, cover and ventilate to allow air to circulate and moisture to escape.

## 1.7 WARRANTY

### A. Limited Warranty: Standard form in which manufacturer agrees to repair or replace items that fail in materials or workmanship within specified warranty period. The items covered by the warranty include structural performance, bond integrity, deflection and buckling.

1. Warranty Period: Five (5) years from date of Substantial Completion, or 5 years and 3 months from the date of shipment from manufacturer's plant, whichever occurs first.

### B. Finish Warranty: Standard form in which manufacturer agrees to repair or replace metal panels that evidence deterioration of fluoropolymer finish, including flaking or peeling from approved primed metal substrate, chalk in excess of 8 when tested in accordance with ASTM D4214, Method A, and /or color fading in excess of 5 $\Delta E$ Hunter units on panels when tested in accordance with ASTM D2244.

1. Warranty Period: Twenty (20) years from date of Substantial Completion, or 20 years and 3 months from the date of shipment from manufacturer's plant, whichever occurs first.

## PART 2 - PRODUCTS

### 2.1 ACCEPTABLE MANUFACTURER

- A. Kingspan Insulated Panels Ltd.
- B. Centria
- C. Perma Therm
- D. High Standard Inc.
- E. Advanced Insulation Concepts (Insulock)
- F. Basis of Design: Kingspan 900 Series wall & roof panels.

### 2.2 EXTERIOR WALL AND ROOF PANELS

- A. Design Criteria – Wall Panels:
  1. Wind Rating
    - a. Design Load: 59 psf (end zone), 49 psf (interior zone) minimum per ASCE 7-16 with an effective wind area of 20 square feet.
    - b. Design criteria shall be L/180 for walls.
    - c. Panel manufacturer shall design panels and panel connections for wind loads from ASCE 7-16
- B. Design Criteria – Roof Panels:
  1. Uplift Rating
    - a. Design Uplift Load: 107 psf @ interior zones, 134 psf @ end zones, 166 psf @ corner zones per ASCE 7-16 with an effective wind area of 20 square feet.
    - b. Deflection design criteria shall be L/240 for roof.
    - c. Panel manufacturer shall design panels and panel connections for wind loads from ASCE 7-16
    - d. Units shall be rated and carry the following listings:
      - 1) Factory Mutual 1-105 uplift rating for 5 foot spans with minimum 14 gauge purlins
      - 2) Factory Mutual 4471 – Class 1 Approval
      - 3) UL 580, Class 90 uplift ratings for 5 foot spans with minimum 14 gauge purlins

2. Fire Classifications
  - a. Factory Mutual Class 1A Approval when installed at a maximum roof slope of 5:12.

C. Performance Criteria – Wall and Roof Panels:

1. Structural Test: Structural performance shall be verifiable by witnessed structural testing for simulated wind loads in accordance with ASTM E72.
2. Fatigue Test: There shall be no evidence of metal/insulation interface delamination when the panel is tested by simulated wind loads (positive and negative loads), when applied for two million alternate cycles of L/180 deflection.
3. Freeze / Heat Cycling Test: Panels shall exhibit no delamination, surface blisters, permanent bowing or deformation when subjected to cyclic temperature extremes of negative 20 deg. F to positive 180 deg. F temperatures for twenty one, eight-hour cycles.
4. Water Penetration: There shall be no uncontrolled water penetration through the panel joints at a pressure differential of 20 psf, when tested in accordance with ASTM E331.
5. Air Infiltration: Air infiltration through the panel shall not exceed 0.01 cfm/sf at 20 psf air pressure differential when tested in accordance with ASTM E283.
6. Panels shall have a minimum sound transmission coefficient (STC) of 22 when tested in accordance with ASTM E90 and rated in accordance with ASTM E413.
7. Humidity Test: Panels shall exhibit no delamination or metal interface corrosion when subjected to +140 deg. F temperature and 100 percent relative humidity for a total of 1200 hours (50 days).
8. Autoclave Test: Panels shall exhibit no delamination or shrinkage/melting of the foam core from the metal skins after being subjected in an autoclave to a pressure of 2psig (13.8kPa) at a temperature of +218 deg. F (+103 deg. C) for a period of 2 1/2 hours.
9. Thermal Properties: The panel wall shall provide an R-value of 33, panel roof shall provide an R-value of 49 when tested in accordance with ASTM C518.
10. Hailstorm Rating for roof panels: Factory Mutual 1 SH hailstorm rating
11. Flame Spread and Smoke Developed Tests on exposed Insulating Core:
  - a. Flame Spread: Less than 25
  - b. Smoke Developed: Less than 450
  - c. Tests performed in accordance with ASTM E84
12. Fire Test Response Characteristics for panels: Steel-faced panels with polyisocyanurate (ISO) core shall fully comply with Chapter 26 of International Building Code regarding the use of Foam Plastic.
  - a. FM 4880: Class I rated per FM Global, panels are approved for use without a thermal barrier and do not create a requirement for automatic sprinkler protection.

- b. UL 263 Fire Resistive Rating; classified as a component of a fire-rated wall assembly for 1-hour and 2-hour rating Design No. U053 (rated assemblies include appropriate layers of fire-rated Type X Gypsum board).
  - c. ASTM D1929 Minimum Flash and Self Ignition; established for foam core.
  - d. NFPA 259 Potential Heat Content; established for foam core.
  - e. NFPA 285 Multi-story; successfully passed.
  - f. S102, S126 UL Canada fire test standards; successfully passed.
13. Insulating Core: Polyisocyanurate (ISO) core, ASTM C591 Type IV, CFC and HCFC free, compliant with Montreal Protocol and Clean Air Act, with the following minimum physical properties:
- a. Core is minimum 88 percent closed cell when tested in accordance with ASTM D6226
  - b. Foam has a density of 2.3 to 2.6 pounds per cubic foot when tested in accordance with ASTM D1622
  - c. Compressive Stress when tested in accordance with ASTM D1621:
    - 1) Parallel to Rise: minimum of 23 psi
    - 2) Perpendicular to Rise: 23 psi
  - d. Shear Stress: Minimum of 25 psi when tested in accordance with ASTM C273
  - e. Tensile Stress: Minimum of 19 psi when tested in accordance with ASTM D1623
  - f. Dimensional stability when tested in accordance with ASTM D2126:
    - 1) High Temperature Aging at 158 deg. F and 97% plus relative humidity for 28 days: less than 6 percent volume change
    - 2) High Temperature Aging at 200 deg. F and ambient humidity for 28 days: less than 4 percent volume change
    - 3) Low Temperature Aging at -10 deg. F and ambient humidity at 28 days: less than 1 percent volume change
- D. Paint Finish Characteristics:
- 1. Gloss: 15 plus or minus 5 measured at 60 degree angle tested in accordance with ASTM D523.
  - 2. Pencil Hardness: HB-H minimum tested in accordance with ASTM D3363.
  - 3. Flexibility, T-Bend: 1-2T bend with no adhesion loss when tested in accordance with ASTM D4145.

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4. Flexibility, Mandrel: No cracking when bent 180 degree around a 1/8 mandrel as tested in accordance with ASTM D522.
5. Adhesion: No adhesion loss tested in accordance with ASTM D3359.
6. Reverse Impact: No cracking or adhesion loss when impacted 3000 x inches of metal thickness (lb-in), tested in accordance with ASTM D2794.
7. Abrasion Resistance: Nominal 65 liters of falling sand to expose 5/32 inch diameter of metal substrate when tested in accordance with ASTM D968.
8. Graffiti Resistance: Minimal effect.
9. Acid Pollutant Resistance: No effect when subjected to 30 percent sulfuric acid for 18 hours, or 10 percent muriatic acid for 15 minutes when tested in accordance with ASTM D1308.
10. Salt Fog Resistance: Passes 1000 hours, when tested in accordance with ASTM B117 (5 percent salt fog @ 95 deg. F).
11. Cyclic Salt Fog and UV Exposure: Passes 2016 hours when tested in accordance with ASTM D5894.
12. Humidity Resistance: Passes 1500 hours at 100 percent relative humidity and 95 deg. F, with a test rating of 10 when tested in accordance with ASTM D2247, and D714.
13. Color Retention: Passes 5000 hours when tested in accordance with ASTM G153 and G154.
14. Chalk Resistance: Maximum chalk is a rating of 8 when tested in accordance with ASTM D4214, Method A.
15. Color Tolerances: Maximum of 5 $\Delta$ E Hunter units on panels when tested in accordance with ASTM D2244.

E. Wall & Roof Panel Assembly:

1. Panel thickness: Wall 3 inches, Roof 4 inches thick.
2. Panel width: 40 inches.
3. Panel Lengths: Minimum 10 feet, maximum 48 feet.
4. Panel Attachment: Shall consist of exposed fasteners and saddle clips.
5. Exterior Face of Panel:
  - a. Material:
    - 1) Steel coil material shall be in accordance with ASTM A755:
    - 2) Gauge: 24 gauge
  - b. Profile description – High Rib: 1 1/2 inch high linear ribs at 13 1/8 inches on center across panel face with 1/2 inch high intermediate ribs centered between high ribs.
  - c. Texture: Non-directional stucco embossed.
  - d. Exterior Paint Finish Color:
    - 1) Selected from current Kingspan Insulated Panels color chart, color by owner.
    - 2) Location Wall & Roof Panels.
    - 3) Finish System:

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- a) 0.2 mil primer with 0.8 mil Kynar 500 (70 percent) SOLID color coat. –Owner to choose color.
- 4) SRI: Minimum of 29.
- 6. Interior Face of Panel:
  - a. Material:
    - 1) Steel coil material shall be in accordance with ASTM A755:
  - b. Profile:
    - 1) Profile description - Shadow Line: Linear striations nominal 0.094 inches deep “V” grooves at 2 1/2 inches on center.
  - c. Texture: Non-directional stucco embossed.
  - d. Gauge: 24 gauge.
  - e. Interior Finish: modified polyester, dry film thickness of 1.0 mil including primer.
    - 1) Color: to be selected and approved by the owner from the stock color options. (USDA Imperial White Selected from the current Kingspan Insulated Panels stock color chart.)

### 2.3 ACCESSORIES

- A. Fasteners:
  - 1. Structural fasteners shall be hex-head type, cadmium plated steel with neoprene washer, or as recommended by manufacturer.
  - 2. Saddle clip for panel attachment shall be 16 gauge with integral self-sealing gasket supplied by the manufacturer.
  - 3. Stitch fasteners for roof panel sidelaps and endlaps shall be vibration resistant type (anti-backout thread), self-drilling low profile screws with sealing washers, designed to resist back out by increasing thread friction as screw loosens.
  - 4. Size and spacing: As recommended by manufacturer.
- B. Perimeter Trim and Penetration Treatments:
  - 1. Fabricated perimeter trim, penetration treatments and metal flashing: Shall be same gauge, material and coating color as exterior face of insulated metal roof and wall panel.
- C. Sealants: Butyl, non-skinning/curing type as recommended by manufacturer.
- D. Butyl Tape: As recommended by manufacturer.

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Provide field measurements to manufacturer as required to achieve proper fit of the preformed roof and wall panel envelope. Measurements shall be provided in a timely manner so that there is no impact to construction or manufacturing schedule.
- B. Supporting Steel: All structural supports required for installation of panels shall be by others. Support members shall be installed within the following tolerances:
  - 1. Roof Panels:
    - a. Wall Structural Tolerance: In the plane of the roof  $\leq \frac{1}{2}$  inches outward, 0 inches inward.
    - b. Verify that bearing support has been provided perpendicular to the orientation of the panels. Width of support shall be as recommended by manufacturer.
  - 2. Panels:
    - a. Plus or minus 1/8 inch in 5 feet in any direction along plane of framing.
    - b. Plus or minus 3/8 inch cumulative in 20 feet in any direction along plane of framing.
    - c. Plus or minus 3/4 inch from framing plane on any elevation.
    - d. Verify that bearing support has been provided behind lap joints of vertical panel systems. Width of support shall be as recommended by manufacturer.
- C. Examine individual panels upon removing from the bundle; notify manufacturer of panel defects. Do not install defective panels.

3.2 PANEL INSTALLATION

- A. Installation shall be in accordance with manufacturer's installation guidelines and recommendations.
- B. Install panels plumb, level, and true-to-line to dimensions and layout indicated on approved shop drawings.
- C. Cut panels prior to installing, where indicated on shop drawings, using a power circular saw with fine tooth carbide tip blade per manufacturer's instructions. Personnel should wear respiratory and eye protection devices.
- D. Butyl Weather Barrier Sealant:
  - 1. Apply non-skinning butyl sealant as shown on shop drawings and manufacturer's installation instructions as necessary to establish the vapor barrier for the panels.

2. Use non-skinning butyl tube sealant only for tight metal-to-metal contact.
  3. Do not use non-skinning butyl tube sealant to bridge gaps.
- E. Place panel fasteners through pre-punched holes in attachment clips, concealed within the joint of the panel. Secure units to the structural supports. Space clips as recommended by manufacturer or otherwise indicated on the approved shop drawings.
- F. At roof panels apply endlap sealing tape and butyl to panel surface to be lapped per manufacturer's instructions.
- G. At roof panel endlaps stitch fasteners to be vibration resistant type.

### 3.3 TRIM INSTALLATION

- A. Place trim and trim fasteners only as indicated per details on the approved shop drawings.
- B. Field drill weep holes at wall panels where appropriate in horizontal trim; minimum 1/4 inch diameter at 24 inches on center.
- C. Place a continuous strip of butyl tube sealant between the inside back face of closure trims and interior panel faces of panels for proper vapor seal.
- D. Fasten the exterior ridge trim at roof panels to the metal ridge closure trims, per manufacturer's recommendations, with 1/4 inch by 7/8 inch stitch fasteners.

### 3.4 SEALANT INSTALLATION FOR EXPOSED JOINTS AT WALL PANELS

- A. Clean and prime surfaces to receive exterior exposed sealants in accordance with sealant manufacturer's recommendations.
- B. Follow sealant manufacturer's recommendations for joint width-to-depth ratio, application temperature range, size and type of backer rod, and compatibility of materials for adhesion.
- C. Direct contact between butyl and silicone sealants shall not be permitted.

### 3.5 CLEANING AND PROTECTION

- A. Remove protective film immediately after installation.
- B. Touch-up, repair or replace metal panels and trim that have been damaged.
- C. After metal roof and wall panel installation, clear weep holes and drainage channels of obstructions, dirt, and sealant.

END OF SECTION