



SEDGWICK COUNTY, KANSAS  
DIVISION OF FINANCE

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**ADDENDUM #3**

**RFB #21-0035**

**SEDGWICK COUNTY ZOO MULTI-PURPOSE HOLDING BUILDING**

July 6, 2021

The following is to ensure that vendors have complete information prior to submitting a proposal. Here are some clarifications regarding the bid for Sedgwick County Zoo Multi-Purpose Holding Building for Project Services.

Questions and/or statements of clarification are in **bold** font, and answers to specific questions are *italicized*.

1. **Sheet A2.1 has a note stating the building roof is a “standing seam metal roof panel” but the existing building is a standard ribbed panel. Which type is to be used?**

*Answer: A manufacturers standard, exposed fastener, tapered-rib, metal roof panel is to be used.*

2. **The drawings indicate for the new building to match the existing adjacent building but no specific information is available about the existing building components. Will additional information be provided?**

*Answer: Refer to specification section 133419 – Metal Building Systems for information. This section is added by addendum.*

3. **The building section A on sheet A3.1 shows the perimeter walls infilled with 8” metal studs but does not specifically show horizontal building girts. Are horizontal girts to be omitted?**

*Answer: Horizontal girts if required by the building supplier may be used. The 8” metal studs are required to attach the interior finish materials and are to be installed between girts, if used.*

4. **Is more information available about the stone wall shown on sheet L1.1 and L2.1?**

*Answer: The intention is to match the existing, adjacent wall. That wall is a gravity, stacked wall using large, rough, limestone boulders. Two general photos from the area are included with this addendum. The exact appearance and material are not critical. This is a back of house area and the wall is strictly economical and functional to retain grade.*

5. **Is there a specification for the standing seam metal roof? There is many different types, panel widths, seam types, panel gauges etc. and the drawings / specifications do not have any information.**

*Answer: Refer to the metal building systems specification section attached with this addendum.*

- 6. The drawings / specifications make no mention of this being a Pre-Engineered Metal Building so I want to confirm if that's the intent?**

*Answer: Yes, the intent is for the structure to match the existing, adjacent building which is a pre-engineered metal building structure.*

- 7. Is there a list of approved pre-engineered metal building manufacturers for this project or are we free to use who we'd like to?**

*Answer: Any manufacturer capable of supplying a building per the requirements of the metal building systems specification section is acceptable.*

- 8. Is Wirecrafters an approved manufacturer for the cages on the interior and exterior of this project?**

*Answer: Wirecrafters does not appear to provide the lightweight aluminum tubing and plastic corner connector system as specified in the drawings.*

- 9. There's a specification for fire extinguishers but the plans aren't showing where they're located.**

*Answer: One fire extinguisher is required and it will be located in the keeper work area, room 102. Final placement will be coordinated with the owner during construction.*

- 10. Drawing A2.1 shows only the north and east elevations of the building. While similar, the south and west elevations are not identical due to the number and placement of door openings. Can a south and west elevation be provided?**

*Answer: Additional elevations will not be provided. Locations of door openings, etc. can be determined from the floor plan.*

- 11. Plan sheet L2.1 does not provide elevations on existing grades. We are requesting a site plan with these elevations noted or at least a benchmark elevation for our surveyor.**

*Answer: The existing animal holding building to the west is at floor elevation 102.50'. The contours shown on the plan are at 1'-0" intervals. The contour furthest east, along the back of the existing rainforest building is contour elevation 113.00'. Grades slope downhill to the west.*

- 12. What areas need to be painted? Is the exposed structural steel to be painted?**

*Answer: All exterior materials are to be pre-finished or galvanized and therefore do not require painting. Interior FRP will be full height so interior walls do not require paint. Neither the metal building structure nor the metal stud framing require paint. The metal building structure will require manufacturers standard shop primer.*

- 13. Would you be able to supply an elevation detail for the keeper worker room, if there were any items that may need blocking or equipment?**

*Answer: An elevation is not available. It should be assumed that blocking will be required in the keeper work area for securing faucets, plumbing piping items, etc. Refer to the architectural plan sheet A1.1 and the mechanical plan sheet M2.1. Blocking will also be required in other areas for proper installation of doors and caging where it affixes to the building.*

- 14. Please confirm that the roof is to be an exposed fastener panel system in lieu of the standing seam. Please confirm the roof panel gauge requirement. Please confirm the panel thickness/gauge requirement. Please confirm that an exposed panel system is acceptable.**

*Answer: Refer to the metal building systems specification included with the addendum.*

- 15. Please clarify the height for the exterior caging. The section 1/A4.1 calls out the exterior holding caging to be 9'-0" tall from the curb, but when I look at the section A/A3.1, it shows the mesh line in front of the curb and scales to 10'-0".**

*Answer: Section 1, sheet A4.1 shall govern. Exterior caging is 9'-0" above the top of the curb. The keeper walkways are 7'-6" minimum above the paving level.*

- 16. Can we get a little more detail on the sliding mesh panels (A4.2) at the keeper aisle? Would a drop-down hinged panel for maintenance access be an acceptable alternative?**

*Answer: The panels are necessary to provide access to the mechanical equipment above. The exact method for constructing the panels is not critical. They may lift out, slide over, or hinge down, etc. so long as the panels are easily removable or demountable for recurring, routine maintenance access.*

- 17. Please confirm that landscaping is not included in the scope of work.**

*Answer: Correct, landscaping is not included in the scope of work.*

- 18. Detail 5 M1.1 indicates a direct connection from the water supply to the piping for WH-2 & WH-3, this connection is not depicted on M2.1 Mechanical floor plan?**

*Answer: Per 5/M1.1 "Radiant Floor Heat Piping Diagram", each water heater gets a 3/4" make-up/fill water supply. The intent is for that to connect to the closest/most convenient location. It is suggested to connect each water heater to the 1-1/2" water service in the same room.*

- 19. I know these drawings are diagrammatic but; the below grade vent lines serving the drain lines to the trench drain are depicted coming up within the animal enclosure, is that where they should be?**

*Answer: The vent lines connect to the trench drain waste, and rise in one location to go up to the VTR. This is shown within the enclosure, tight to the inside corner of the fencing.*

- 20. No backflow preventer is depicted, is one or more required?**

*Answer: It should not require one unless you are connected to contaminants that could possibly flow back into the potable water system.*

- 21. Confirm the gas company will be providing and installing a meter at the exterior of this building?**

*Answer: Should only need a regulator and that should be provided by the plumber.*

- 22. Confirm the radiant floor heat piping is to be zip tied to the welded wire fabric provided and installed by others?**

*Answer: The radiant piping can be zip tied to the WWF, but it must be on chairs or another approved method to ensure that the piping (and WWF) is in the middle of the slab.*

**23. Confirm if there will there be insulation provided below the concrete in areas to receive radiant floor heat?**

*Answer: There is no insulation shown under the slab. The radiant heat is meant as a comfort heat source and not the primary heat source.*

Firms interested in submitting a bid, must respond with complete information and **deliver on or before 1:45 pm CDT, July 13, 2021**. Late *bids* will not be accepted and will not receive consideration for final award.

**“PLEASE ACKNOWLEDGE RECEIPT OF THIS ADDENDUM ON THE *BID* RESPONSE PAGE.”**



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Lee Barrier  
Purchasing Agent

## SECTION 133419 - METAL BUILDING SYSTEMS

## PART 1 - GENERAL

## 1.1 SUMMARY

- A. Section Includes:
  - 1. Structural-steel framing.
  - 2. Metal roof panels.
  - 3. Metal wall panels.

## 1.2 ACTION SUBMITTALS

- A. Product Data: For each type of metal building system component.
- B. Shop Drawings: Indicate components by others. Include full building plan, elevations, sections, details and attachments to other work.
- C. Delegated-Design Submittal: For metal building systems.
  - 1. Include analysis data indicating compliance with performance requirements and design data signed and sealed by the qualified professional engineer responsible for their preparation.

## 1.3 INFORMATIONAL SUBMITTALS

- A. Welding certificates.
- B. Letter of Design Certification: Signed and sealed by a qualified professional engineer. Include the following:
  - 1. Name and location of Project.
  - 2. Name of manufacturer.
  - 3. Name of Contractor.
  - 4. Building dimensions including width, length, height, and roof slope.
  - 5. Governing building code and year of edition.
  - 6. Design Loads: Include dead load, roof live load, collateral loads, roof snow load, deflection, wind loads/speeds and exposure, seismic design category or effective peak velocity-related acceleration/peak acceleration, and auxiliary loads (cranes).
  - 7. Load Combinations: Indicate that loads were applied acting simultaneously with concentrated loads, according to governing building code.
  - 8. Building-Use Category: Indicate category of building use and its effect on load importance factors.
- C. Sample warranties.

#### 1.4 CLOSEOUT SUBMITTALS

- A. Maintenance data.

#### 1.5 WARRANTY

- A. Special Warranty on Metal Panel Finishes: Manufacturer agrees to repair finish or replace metal panels that show evidence of deterioration of factory-applied finishes within specified warranty period.
  - 1. Finish Warranty Period: 15 years from date of Substantial Completion.

### PART 2 - PRODUCTS

#### 2.1 PERFORMANCE REQUIREMENTS

- A. Structural Performance: Metal building systems shall withstand the effects of gravity loads and the following loads and stresses within limits and under conditions indicated according to procedures in MBMA's "Metal Building Systems Manual."
  - 1. Design Loads: As indicated on Drawings.
  - 2. Deflection and Drift Limits: Design metal building system assemblies to withstand serviceability design loads without exceeding deflections and drift limits recommended in AISC Steel Design Guide No. 3 "Serviceability Design Considerations for Steel Buildings."
- B. Thermal Movements: Allow for thermal movements from ambient and surface temperature changes by preventing buckling, opening of joints, overstressing of components, failure of joint sealants, failure of connections, and other detrimental effects. Base calculations 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.
- C. Structural Performance for Metal Roof and Wall Panels: Provide metal panel systems capable of withstanding the effects of the following loads, based on testing according to ASTM E1592:
  - 1. Wind Loads: As indicated on Drawings.
- D. Air Infiltration for Metal Roof Panels: Air leakage of not more than 0.06 cfm/sq. ft. (0.3 L/s per sq. m) when tested according to ASTM E1680 at the following test-pressure difference:
  - 1. Test-Pressure Difference: 1.57 lbf/sq. ft. (75 Pa).
- E. Air Infiltration for Metal Wall Panels: Air leakage of not more than 0.06 cfm/sq. ft. (0.3 L/s per sq. m) when tested according to ASTM E283 at the following test-pressure difference:
  - 1. Test-Pressure Difference: 1.57 lbf/sq. ft. (75 Pa).

- F. Water Penetration for Metal Roof Panels: No water penetration when tested according to ASTM E1646 at the following test-pressure difference:
  - 1. Test-Pressure Difference: 2.86 lbf/sq. ft. (137 Pa).
- G. Water Penetration for Metal Wall Panels: No water penetration when tested according to ASTM E331 at the following test-pressure difference:
  - 1. Test-Pressure Difference: 2.86 lbf/sq. ft. (137 Pa).
- H. Wind-Uplift Resistance: Provide metal roof panel assemblies that comply with UL 580 for wind-uplift-resistance class indicated.
  - 1. Uplift Rating: UL 60.
- I. FM Global Listing: Provide metal roof panels and component materials that comply with requirements in FM Global 4471 as part of a panel roofing system and that are listed in FM Global's "Approval Guide" for Class 1 or noncombustible construction, as applicable. Identify materials with FM Global markings.
  - 1. Fire/Windstorm Classification: Class 1A-60.
  - 2. Hail Resistance: MH.
- J. Thermal Performance for Opaque Elements: Provide the following maximum U-factors and minimum R-values when tested according to ASTM C1363 or ASTM C518:
  - 1. Roof:
    - a. R-Value: 30.
  - 2. Walls:
    - a. R-Value: 19.

## 2.2 STRUCTURAL-STEEL FRAMING

- A. Structural Steel: Comply with AISC 360, "Specification for Structural Steel Buildings."
- B. Bolted Connections: Comply with RCSC's "Specification for Structural Joints Using High-Strength Bolts."
- C. Cold-Formed Steel: Comply with AISI's "North American Specification for the Design of Cold-Formed Steel Structural Members" for design requirements and allowable stresses.
- D. Primary Framing: Manufacturer's standard primary-framing system, designed to withstand required loads and specified requirements. Primary framing includes transverse and lean-to frames; rafters and rake beams; sidewall, intermediate, end-wall, and corner columns; and wind bracing.
  - 1. General: Provide frames with attachment plates, bearing plates, and splice members. Factory drill for field-bolted assembly. Provide frame span and spacing indicated.

- a. Slight variations in span and spacing may be acceptable if necessary to comply with manufacturer's standard, as approved by Architect.
  2. Frame Configuration: Single gable.
  3. Exterior Column: Uniform depth.
  4. Rafter: Uniform depth.
- E. End-Wall Framing: Manufacturer's standard primary end-wall framing fabricated for field-bolted assembly to comply with the following:
- F. Secondary Framing: Manufacturer's standard secondary framing, including purlins, girts, eave struts, flange bracing, base members, gable angles, clips, headers, jambs, and other miscellaneous structural members. Unless otherwise indicated, fabricate framing from either cold-formed, structural-steel sheet or roll-formed, metallic-coated steel sheet, prepainted with coil coating, to comply with the following:
- G. Anchor Rods: Headed anchor rods as indicated in Anchor Rod Plan for attachment of metal building to foundation.

### 2.3 METAL ROOF PANELS

- A. Exposed Fastener, Tapered-Rib, Metal Roof Panels: Formed with raised, trapezoidal major ribs and intermediate stiffening ribs symmetrically spaced between major ribs; designed to be installed by lapping side edges of adjacent panels and mechanically attaching panels to supports using exposed fasteners in side laps.
1. Material: Zinc-coated (galvanized) steel sheet, 0.018-inch (0.46-mm) nominal uncoated steel thickness. Prepainted by the coil-coating process to comply with ASTM A755/A755M.
    - a. Exterior Finish: Two-coat fluoropolymer.
    - b. Color: Match existing adjacent building.
  2. Major-Rib Spacing: 12 inches (305 mm) o.c.
  3. Panel Coverage: 36 inches (914 mm).
  4. Panel Height: 1.125 inches (29 mm).

### 2.4 METAL WALL PANELS

- A. Exposed-Fastener, Tapered-Rib, Metal Wall Panels: Formed with raised, trapezoidal major ribs and intermediate stiffening ribs symmetrically spaced between major ribs; designed to be installed by lapping side edges of adjacent panels and mechanically attaching panels to supports using exposed fasteners in side laps.
1. Material: Zinc-coated (galvanized) steel sheet, 0.018-inch (0.46-mm) nominal uncoated steel thickness. Prepainted by the coil-coating process to comply with ASTM A755/A755M.
    - a. Exterior Finish: Two-coat fluoropolymer.



- b. Color: Match existing adjacent building.
- 2. Major-Rib Spacing: 12 inches (305 mm) o.c.
- 3. Panel Coverage: 36 inches (914 mm).
- 4. Panel Height: 1.125 inches (29 mm).

## 2.5 ACCESSORIES

- A. General: Provide accessories as standard with metal building system manufacturer and as specified. Fabricate and finish accessories at the factory to greatest extent possible, by manufacturer's standard procedures and processes. Comply with indicated profiles and with dimensional and structural requirements.
  - 1. Form exposed sheet metal accessories that are without excessive oil-canning, buckling, and tool marks and that are true to line and levels indicated, with exposed edges folded back to form hems.
- B. Roof Panel Accessories: Provide components required for a complete metal roof panel assembly including copings, fasciae, corner units, ridge closures, clips, sealants, gaskets, fillers, closure strips, and similar items. Match material and finish of metal roof panels unless otherwise indicated.
- C. Wall Panel Accessories: Provide components required for a complete metal wall panel assembly including copings, fasciae, mullions, sills, corner units, clips, sealants, gaskets, fillers, closure strips, and similar items. Match material and finish of metal wall panels unless otherwise indicated.
- D. Pipe Flashing: Premolded, EPDM pipe collar with flexible aluminum ring bonded to base.

## PART 3 - EXECUTION

### 3.1 ERECTION OF STRUCTURAL FRAMING

- A. Erect metal building system according to manufacturer's written instructions and drawings.
- B. Do not field cut, drill, or alter structural members without written approval from metal building system manufacturer's professional engineer.
- C. Set structural framing accurately in locations and to elevations indicated, according to AISC specifications referenced in this Section. Maintain structural stability of frame during erection.
- D. Base and Bearing Plates: Clean concrete- and masonry-bearing surfaces of bond-reducing materials, and roughen surfaces prior to setting plates. Clean bottom surface of plates.
  - 1. Set plates for structural members on wedges, shims, or setting nuts as required.
  - 2. Tighten anchor rods after supported members have been positioned and plumbed. Do not remove wedges or shims but, if protruding, cut off flush with edge of plate before packing with grout.

3. Promptly pack grout solidly between bearing surfaces and plates so no voids remain. Neatly finish exposed surfaces; protect grout and allow to cure. Comply with manufacturer's written installation instructions for shrinkage-resistant grouts.
- E. Align and adjust structural framing before permanently fastening. Before assembly, clean bearing surfaces and other surfaces that will be in permanent contact with framing. Perform necessary adjustments to compensate for discrepancies in elevations and alignment.
    1. Level and plumb individual members of structure.
    2. Make allowances for difference between temperature at time of erection and mean temperature when structure will be completed and in service.
  - F. Primary Framing and End Walls: Erect framing level, plumb, rigid, secure, and true to line. Level baseplates to a true even plane with full bearing to supporting structures, set with double-nutted anchor bolts. Use grout to obtain uniform bearing and to maintain a level base-line elevation. Moist-cure grout for not less than seven days after placement.
    1. Make field connections using high-strength bolts installed according to RCSC's "Specification for Structural Joints Using High-Strength Bolts" for bolt type and joint type specified.
      - a. Joint Type: Snug tightened or pretensioned as required by manufacturer.
  - G. Secondary Framing: Erect framing level, plumb, rigid, secure, and true to line. Field bolt secondary framing to clips attached to primary framing.
    1. Provide rake or gable purlins with tight-fitting closure channels and fasciae.
    2. Locate and space wall girts to suit openings such as doors and windows.
    3. Provide supplemental framing at entire perimeter of openings, including doors, windows, ventilators, and other penetrations of roof and walls.
  - H. Bracing: Install bracing in roof and sidewalls where indicated on erection drawings.
    1. Tighten rod and cable bracing to avoid sag.
    2. Locate interior end-bay bracing only where indicated.
  - I. Framing for Openings: Provide shapes of proper design and size to reinforce openings and to carry loads and vibrations imposed, including equipment furnished under mechanical and electrical work. Securely attach to structural framing.
  - J. Erection Tolerances: Maintain erection tolerances of structural framing within AISC 303.
- ### 3.2 METAL PANEL INSTALLATION, GENERAL
- A. General: Anchor metal panels and other components of the Work securely in place, with provisions for thermal and structural movement.
    1. Field cut metal panels as required for doors, windows, and other openings. Cut openings as small as possible, neatly to size required, and without damage to adjacent metal panel finishes.

- a. Field cutting of metal panels by torch is not permitted unless approved in writing by manufacturer.
  2. Install metal panels perpendicular to structural supports unless otherwise indicated.
  3. Flash and seal metal panels with weather closures at perimeter of openings and similar elements. Fasten with self-tapping screws.
  4. Locate and space fastenings in uniform vertical and horizontal alignment.
  5. Locate metal panel splices over structural supports with end laps in alignment.
  6. Lap metal flashing over metal panels to allow moisture to run over and off the material.
- B. Lap-Seam Metal Panels: Install screw fasteners using power tools with controlled torque adjusted to compress EPDM washers tightly without damage to washers, screw threads, or metal panels. Install screws in predrilled holes.
1. Arrange and nest side-lap joints so prevailing winds blow over, not into, lapped joints. Lap ribbed or fluted sheets one full rib corrugation. Apply metal panels and associated items for neat and weathertight enclosure. Avoid "panel creep" or application not true to line.
- C. Metal Protection: Where dissimilar metals contact each other or corrosive substrates, protect against galvanic action by painting contact surfaces with corrosion-resistant coating, by applying rubberized-asphalt underlayment to each contact surface, or by other permanent separation as recommended by metal roof panel manufacturer.
- D. Joint Sealers: Install gaskets, joint fillers, and sealants where indicated and where required for weatherproof performance of metal panel assemblies. Provide types of gaskets, fillers, and sealants indicated; or, if not indicated, provide types recommended by metal panel manufacturer.
1. Seal metal panel end laps with double beads of tape or sealant the full width of panel. Seal side joints where recommended by metal panel manufacturer.
  2. Prepare joints and apply sealants to comply with requirements in Section 079200 "Joint Sealants."

### 3.3 METAL ROOF PANEL INSTALLATION

- A. General: Provide metal roof panels of full length from eave to ridge unless otherwise indicated or restricted by shipping limitations.
1. Install ridge caps as metal roof panel work proceeds.
  2. Flash and seal metal roof panels with weather closures at eaves and rakes. Fasten with self-tapping screws.
- B. Lap-Seam Metal Roof Panels: Fasten metal roof panels to supports with exposed fasteners at each lapped joint, at location and spacing recommended by manufacturer.
1. Provide metal-backed sealing washers under heads of exposed fasteners bearing on weather side of metal roof panels.
  2. Provide sealant tape at lapped joints of metal roof panels and between panels and protruding equipment, vents, and accessories.

3. Apply a continuous ribbon of sealant tape to weather-side surface of fastenings on end laps and on side laps of nesting-type metal panels, on side laps of ribbed or fluted metal panels, and elsewhere as needed to make metal panels weatherproof to driving rains.
  4. At metal panel splices, nest panels with minimum 6-inch (152-mm) end lap, sealed with butyl-rubber sealant and fastened together by interlocking clamping plates.
- C. Metal Fascia Panels: Align bottom of metal panels and fasten with blind rivets, bolts, or self-drilling or self-tapping screws. Flash and seal metal panels with weather closures where fasciae meet soffits, along lower panel edges, and at perimeter of all openings.

### 3.4 METAL WALL PANEL INSTALLATION

- A. General: Install metal wall panels in orientation, sizes, and locations indicated on Drawings. Install panels perpendicular to girts, extending full height of building, unless otherwise indicated. Anchor metal wall panels and other components of the Work securely in place, with provisions for thermal and structural movement.
1. Unless otherwise indicated, begin metal panel installation at corners with center of rib lined up with line of framing.
  2. Shim or otherwise plumb substrates receiving metal wall panels.
  3. When two rows of metal panels are required, lap panels 4 inches (102 mm) minimum.
  4. When building height requires two rows of metal panels at gable ends, align lap of gable panels over metal wall panels at eave height.
  5. Rigidly fasten base end of metal wall panels and allow eave end free movement for thermal expansion and contraction. Predrill panels.
  6. Flash and seal metal wall panels with weather closures at eaves and rakes, and at perimeter of all openings. Fasten with self-tapping screws.
  7. Install screw fasteners in predrilled holes.
  8. Install flashing and trim as metal wall panel work proceeds.
  9. Apply elastomeric sealant continuously between metal base channel (sill angle) and concrete, and elsewhere as indicated on Drawings; if not indicated, as necessary for waterproofing.
  10. Align bottom of metal wall panels and fasten with blind rivets, bolts, or self-drilling or self-tapping screws.
  11. Provide weatherproof escutcheons for pipe and conduit penetrating exterior walls.
- B. Metal Wall Panels: Install metal wall panels on exterior side of girts. Attach metal wall panels to supports with fasteners as recommended by manufacturer.

### 3.5 ACCESSORY INSTALLATION

- A. General: Install accessories with positive anchorage to building and weathertight mounting, and provide for thermal expansion. Coordinate installation with flashings and other components.
1. Install components required for a complete metal roof panel assembly, including trim, copings, ridge closures, seam covers, flashings, sealants, gaskets, fillers, closure strips, and similar items.
  2. Install components for a complete metal wall panel assembly, including trim, copings, corners, seam covers, flashings, sealants, gaskets, fillers, closure strips, and similar items.

3. Where dissimilar metals contact each other or corrosive substrates, protect against galvanic action by painting contact surfaces with corrosion-resistant coating, by applying rubberized-asphalt underlayment to each contact surface, or by other permanent separation as recommended by manufacturer.
- B. Flashing and Trim: Comply with performance requirements, manufacturer's written installation instructions, and SMACNA's "Architectural Sheet Metal Manual." Provide concealed fasteners where possible, and set units true to line and level. Install work with laps, joints, and seams that will be permanently watertight and weather resistant.
1. Install exposed flashing and trim that is without excessive oil-canning, buckling, and tool marks and that is true to line and levels indicated, with exposed edges folded back to form hems. Install sheet metal flashing and trim to fit substrates and to result in waterproof and weather-resistant performance.
  2. Expansion Provisions: Provide for thermal expansion of exposed flashing and trim. Space movement joints at a maximum of 10 feet (3 m) with no joints allowed within 24 inches (600 mm) of corner or intersection. Where lapped or bayonet-type expansion provisions cannot be used or would not be sufficiently weather resistant and waterproof, form expansion joints of intermeshing hooked flanges, not less than 1 inch (25 mm) deep, filled with mastic sealant (concealed within joints).
- C. Pipe Flashing: Form flashing around pipe penetration and metal roof panels. Fasten and seal to panel as recommended by manufacturer.

END OF SECTION 133419