SECTION 012100 - ALLOWANCES

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

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

1.2 SUMMARY

A. Section includes administrative and procedural requirements governing allowances.

B. Types of allowances include the following:

1. Lump-sum allowances.

C. Related Requirements:

1. Section 012600 "Contract Modification Procedures" for procedures for submitting and handling Change Orders.
2. Section 014000 "Quality Requirements" for procedures governing the use of allowances for field testing by an independent testing agency.

1.3 DEFINITIONS

A. Allowance: A quantity of work or dollar amount included in the Contract, established in lieu of additional requirements, used to defer selection of actual materials and equipment to a later date when direction will be provided to Contractor. If necessary, additional requirements will be issued by Change Order.

1.4 SELECTION AND PURCHASE

A. At the earliest practical date after award of the Contract, advise Architect of the date when final selection, or purchase and delivery, of each product or system described by an allowance must be completed by the Owner to avoid delaying the Work.

B. At Architect's request, obtain proposals for each allowance for use in making final selections. Include recommendations that are relevant to performing the Work.

C. Purchase products and systems selected by Architect from the designated supplier.

1.5 ACTION SUBMITTALS

A. Submit proposals for purchase of products or systems included in allowances in the form specified for Change Orders.

1.6 INFORMATIONAL SUBMITTALS

A. Submit invoices or delivery slips to show actual quantities of materials delivered to the site for use in fulfillment of each allowance.

B. Submit time sheets and other documentation to show labor time and cost for installation of allowance items that include installation as part of the allowance.

C. Coordinate and process submittals for allowance items in same manner as for other portions of the Work.

1.7 LUMP-SUM ALLOWANCES

A. Allowance shall include cost to Contractor of specific products and materials ordered by Owner or selected by Architect under allowance and shall include taxes, freight,and delivery to Project site.

B. Unless otherwise indicated, Contractor's costs for receiving and handling at Project site, labor, installation, overhead and profit, and similar costs related to products and materials ordered by Owner or selected by Architect under allowance shall be included as part of the Contract Sum and not part of the allowance.

C. Unused Materials: Return unused materials purchased under an allowance to manufacturer or supplier for credit to Owner, after installation has been completed and accepted.

1. If requested by Architect, retain and prepare unused material for storage by Owner. Deliver unused material to Owner's storage space as directed.

1.8 ADJUSTMENT OF ALLOWANCES

A. Allowance Adjustment: To adjust allowance amounts, prepare a Change Order proposal based on the difference between purchase amount and the allowance, multiplied by final measurement of work-in-place where applicable. If applicable, include reasonable allowances for cutting losses, tolerances, mixing wastes, normal product imperfections, required maintenance materials, and similar margins.

1. Include installation costs in purchase amount only where indicated as part of the allowance.
2. If requested, prepare explanation and documentation to substantiate distribution of overhead costs and other markups.
3. Submit substantiation of a change in scope of Work, if any, claimed in Change Orders related to unit-cost allowances.

4. Owner reserves the right to establish the quantity of work-in-place by independent quantity survey, measure, or count.

B. Submit claims for increased costs due to a change in the scope or nature of the allowance described in the Contract Documents, whether for the purchase order amount or Contractor's handling, labor, installation, overhead, and profit.

1. Do not include Contractor's or subcontractor's indirect expense in the Change Order cost amount unless it is clearly shown that the nature or extent of Work has changed from what could have been foreseen from information in the Contract Documents.
2. No change to Contractor's indirect expense is permitted for selection of higher- or lower-priced materials or systems of the same scope and nature as originally indicated.

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION

3.1 EXAMINATION

A. Examine products covered by an allowance promptly on delivery for damage or defects. Return damaged or defective products to manufacturer for replacement.

3.2 PREPARATION

A. Coordinate materials and their installation for each allowance with related materials and installations to ensure that each allowance item is completely integrated and interfaced with related work.

3.3 SCHEDULE OF ALLOWANCES

A. Allowance No. 1: Lump-Sum Allowance: Include the sum of $120,000.00 for IT Technology and Security requirements.

1. This allowance includes material, receiving, handling, and installation costs, and Contractor overhead and profit.

END OF SECTION 012100

SECTION 133400 – ENGINEERED POST FRAME STRUCTURES

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes (~~In Base Bid and~~ Add Alternate No. 2):

1. Engineered wood-framed structures consisting of the following components:

a. Factory-engineered wall columns.
b. Factory-engineered roof truss.
c. Factory-engineered metal roof and wall panels.
d. Prefinished metal trim items.
e. Prefinished ridge vents and soffits.
f. Cast-in-place concrete foundations supporting engineered wood-framed structures.
~~f.~~g. Cast-in-place concrete for slab-on-grade surface of engineered wood-framed structure.

1.2 REFERENCES

A. Reference Standards:

1. Preservative Treated Lumber:

a. American Wood Preservers Association (AWPA).

2. Lumber grading rules and wood species:

a. National Design Specifications for Wood Construction, current edition.
b. Northeastern Lumber Manufacturer's Association, Inc. (NELMA).
c. Southern Pine Inspection Bureau (SPIB): Southern Pine.
d. West Coast Lumber Inspection Bureau (WCLIB): Douglas Fir.
e. Western Wood Products Association (WWPA): Douglas Fir and Ponderosa Pine.

3. MSR Lumber Producers Council (MSR) for machine stress rated lumber.
4. National Design Specifications for Wood Construction.
5. National Design Standard for Metal Plate Connected Wood Truss Construction (TPI).

1.3 ACTION SUBMITTALS

A. Product Data: For each type of process and factory-engineered product. Indicate component materials, dimensions, profiles, and construction and installation details.

1. Include information for specialty accessory products specified for this Project.

2. Include data for wood-preservative treatment from chemical treatment manufacturer and certification by treating plant that treated materials comply with requirements. Indicate type of preservative used and net amount of preservative retained.
3. For products receiving waterborne treatment, include statement that moisture content of treated materials was reduced to levels specified before shipment to truss fabricator.
4. Include copies of warranties from chemical treatment manufacturers for each type of treatment.

B. Shop Drawings: Include plans, elevations, sections, details, and attachments to other work.

1. Sizes, stress grades, and species of lumber.
2. Anchor-bolt layout.
3. Foundation layout, sizes, and reinforcing.
~~3.~~4. Slab-on-grade layout, sizes, and reinforcing.
~~4.~~5. Structural Framing Drawings: Show complete fabrication of primary and secondary framing. Include provisions for the following information:

a. Slope or depth, span, and spacing of truss.
b. Heel bearing height.
c. Design loading to include:

1) Top chord live load.
2) Top chord dead load.
3) Bottom chord dead load.
4) Concentrated loads and their points.

d. Adjustments to lumber and plate design values for conditions of use.
e. Plate type, thickness of gauge, and size.
f. Lumber size, species and grade for each member.

~~5.~~6. Metal Roof and Wall Panel Layout Drawings: Show layouts of metal panels including methods of support. Include details of edge conditions, joints, panel profiles, corners, anchorages, trim, flashings, closures, and special details. Indicate the following components:

a. Roof mounted items.
b. Wall mounted items.

~~6.~~7. Submit Shop Drawings that have been engineered and certified by professional engineer licensed in the State of South Carolina Include seal and signature of professional engineer on Shop Drawings.

C. Accessory Drawings: Include details of the following items:

1. Flashing and trim.
2. Gutters.
3. Downspouts.

D. Delegated Design Data: Truss engineering calculations for loading and stresses, bearing seal and signature of professional engineer licensed in the State in which Project is located. Include the following calculations:

1. Minimum design shall meet design standards of latest edition of the International Building Code unless other, more stringent requirements are in force in Project location.
2. Bending moments and axial forces for each member.
3. Basic plate design values.
4. Design analysis for each joint indicating that proper plates have been used.
5. Provide design calculations for exterior walls, canopies, soffit systems, and lateral bracing walls. Design wind loads and lateral bracing loads are indicated on structural Drawings.
6. Provide design calculations for all foundations required to support post frame structures.
~~6.~~7. Provide design calculations for slab-on-grade concrete surface at post frame structures.
~~7.~~8. Submit design calculations that have been engineered and certified by professional engineer licensed in the State in which Project is located. Include seal and signature of professional engineer on calculations.

E. Samples for Initial Selection: For units with factory-applied color finish, color chart of manufacturer's standard colors.

F. Samples for Verification: Actual sample of finished products for each type of exposed finish.

1.4 INFORMATIONAL SUBMITTALS

A. Evaluation Reports: For the following, from ICC-ES:

1. Wood-preservative-treated wood.
2. Engineered wood products.

B. Quality Control Submittals:

1. Test Reports: Certified test reports showing compliance with specified performance characteristics.
2. Certification: Manufacturer’s certification that Products furnished meet specified design and performance criteria.

C. Submit written proof of third party inspection program in force for truss manufacturer used on Project.

D. Certifications: Certify that specified roof and wind load requirements are met.

E. Delegated Design Engineer Qualifications: For engineered post frame structures.

1.5 QUALITY ASSURANCE

A. Manufacturer Qualifications: Manufacturer with minimum 5 years documented experience that participates in recognized quality-assurance program that complies with quality-control procedures and that involves third-party inspection by an independent testing and inspecting agency acceptable to Architect and authorities having jurisdiction.

1. Manufacturer's responsibilities include providing professional engineering services needed to assume engineering responsibility.
2. Manufacturer shall have engineering department.
3. Engineering Responsibility: Preparation of Shop Drawings and comprehensive engineering analysis by qualified professional engineer.

B. Delegated Design Engineer Qualifications: A professional engineer who is legally qualified to practice State of South Carolina where Project is located and who is experienced in providing engineering services of the type indicated.

C. Erector Qualifications: An experienced erector who specializes in erecting and installing work similar in material, design, and extent to that indicated for this Project and who is acceptable to manufacturer.

D. Source Limitations: Obtain engineered post frame building components, including primary and secondary framing and metal panel assemblies, from single source from single manufacturer.

1.6 DELIVERY, STORAGE, AND HANDLING

A. Handle and store materials per manufacturer's requirements.

B. Handle and store trusses to comply with recommendations in TPI BCSI**,** "Building Component Safety Information: Guide to Good Practice for Handling, Installing, Restraining, & Bracing Metal Plate Connected Wood Trusses."

1. Store trusses flat, off of ground, and adequately supported to prevent lateral bending.
2. Protect trusses from weather by covering with waterproof sheeting, securely anchored.
3. Provide for air circulation around stacks and under coverings.
4. Store trusses to avoid contact with other materials that could create staining or discoloration.

C. Inspect trusses upon deliver to Project site and notify manufacturer immediately if members have damage from handling or show discoloration, corrosion, or other evidence of deterioration. Discard and replace trusses that are damaged or defective.

1.7 WARRANTY

A. Manufacturer's Special Warranty – Treated Material: Manufacturer agrees to repair, restore, or replace columns that fail in materials within specified warranty period.

1. Warranty Period: 50 years from date of Substantial Completion.
2. Manufacturer shall repair treated structural columns that fail because of insect damage or because of decay that occurs under normal conditions and proper use. If manufacturer is not able to repair structural posts to satisfaction of Architect and Owner, manufacturer shall replace damaged treated structural columns.

B. Special Warranty on Metal Panel Finishes: Manufacturer's standard form in which manufacturer agrees to repair finish or replace metal panels that show evidence of deterioration of factory-applied finishes within specified warranty period.

1. Exposed Panel Finish: Deterioration includes the following:

a. Color fading more than 5 Hunter units when tested per ASTM D2244.
b. Chalking in excess of a No. 8 rating when tested per ASTM D4214.
c. Cracking, checking, peeling, or failure of paint to adhere to bare metal.

2. Finish Warranty Period: From date of Substantial Completion, 40 years on chalk; 30 years on color change.
3. Warranty Exclusions: Manufacturer will not warrant metal panel finishes damaged due to exposure to atmospheric pollutants including animal waste or other corrosive conditions. Manufacturer will not warrant labor by others.
4. Manufacturer shall repair painted steel roofing or siding panels if the paint peels, cracks, checks, flakes or blisters to an extent that is apparent by ordinary outdoor visual observation when exposed to normal weather and atmospheric conditions. If manufacturer is not able to repair steel panels to satisfaction of Architect and Owner, manufacturer shall replace damaged steel panels.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

A. Basis-of-Design: Subject to compliance with requirements, provide basis-of-design indicated or Architect approved comparable products by one of the following, or Architect approved equal manufacturer:

1. Energy Panel Structures, Inc.
2. Morton Buildings.
3. Midwest Manufacturing.
4. Cleary Building Corp.

2.2 PERFORMANCE CRITERIA

A. Delegated Design: Engage a qualified professional engineer, as defined in Section 014000 "Quality Requirements," to design engineered post frame structures.

B. Design Requirements:

1. Design wood members per formulas published in National Design Specifications (NDS) for Wood Construction.
2. Design light meta-toothed connector plates and joint design in compliance with Truss Plate Institute's (TPI) National Design Standard for Metal Plate Connected Wood Truss Construction.
3. Include unbalanced roof loads required by ASCE-7, current edition.

2.3 WOOD-PRESERVATIVE-TREATED LUMBER

A. Preservative Treatment by Pressure Process: AWPA U1; Use Category UC3b for exterior construction not in contact with ground, and Use Category UC4a for items in contact with ground.

1. Preservative Chemicals: Acceptable to authorities having jurisdiction and containing no arsenic or chromium. Do not use inorganic boron (SBX) for sill plates.
2. For exposed items indicated to receive stained or natural finish, use chemical formulations that do not require incising, contain colorants, bleed through, or otherwise adversely affect finishes.

B. Maximum moisture content of 19 percent or per appropriate grading rules. Do not use material that is warped or does not comply with requirements for untreated material.

C. Mark lumber with treatment quality mark of inspection agency approved by ALSC Board of Review.

D. Application: Treat items indicated on Drawings, and the following:

1. Laminated columns.
2. Baseboards.
3. Hold down blocks.

2.4 MATERIALS - WOOD

A. Laminated Columns: Factory-fabricated from minimum 3 ply 2 inch by 6 inch #1 or better southern yellow pine.

1. Columns to 20 Feet Lengths: Full-length (unspliced) nail laminated plys. Provide middle ply with short truss support block.
2. Columns over 20 Feet Lengths: Spliced laminated plies per approved Shop Drawings and manufacturer's design.
3. Preservative-Treatment: Treat portions of columns designed to be in contact with ground to net retention of 0.60 pounds per cubic foot of CCA per AWPA U1 requirements.

B. Wood Trusses: Factory-fabricated of surfaced lumber.

1. Lumber:

a. Top and Bottoms Chords: No. 1 or better Southern yellow pine or comparable Spruce- pine-fir.
b. Webs: No. 2 or better Southern yellow pine or SPF.

2. Metal Connector Plates: Fabricated from ASTM A653; Structural Steel (SS), high-strength low-alloy steel Type A (HSLAS Type A); G60 hot-dip galvanizing coating designation.

a. Plate Thicknesses: 0.036 inch and 0.0556 inch thick.

C. Baseboards: 2 inch by 8 inch No. 2 or better Southern yellow pine, tongue-and-groove.

1. Preservative-Treatment: Treat baseboards for ground contact conditions. per AWPA U1 requirements. Preservative shall penetrate 100 percent of sapwood.

D. Wall Girts: 2 inch by 6 inch girts, No. 1 or better Southern yellow pine.

E. Purlins and Truss Ties: 2 inch by 4 inch laid on edge, MSR SPF 1650.

1. Purlins may be installed over top chord of truss, flat, or in purling hangers. Where purlins and truss ties are set in hangers, provide 2 inch by 6 inch laid on edge, MSR SPF 1650 or No. 1 or better Southern yellow pine.

F. Overhang Framing: Fabricated rafter frames.

1. Provide factory beveled facia boards, 2 inch by 6 inch Spruce-pine-fir, No. 2.

G. Wind Bracing:

1. 2 inch by 6 inch, No. 2 or better Spruce-pine-fir from end wall column to first truss back.
2. 2 inch by 4 inch diagonal in roofline bracing as required by design.

H. Headers: Provide built-up No. 1 or better Southern yellow pine headers as required to meet loading designs.

I. Incidental Framing: No.2 or better 2 inch by 4 inch.

2.5 MATERIALS – PREFINISHED MATERIALS

A. Metal Panels: Exposed-fastener metal roof and wall panels, formed with raised ribs and recesses.

1. Material: Zinc-coated (galvanized) steel sheet, 0.0125 inch nominal thickness.

a. Exterior Finish: Siliconized polyester.
b. Color: Selected by Architect from manufacturer's full range.

2. Rib Spacing: 2 major ribs at 9 inches on center. 2 minor ribs at 3 inches on center between major ribs.

3. Panel Coverage: 36 inches.
4. Panel Height: 3/4 inch.

B. Metal Trim: Match material and color of metal panels. Provide trim for corners, ridge lines, rakes, eaves, and panel bases.

1. Lengths: Minimum 10 feet .
2. Trim, overhang facias, track covers, and slide door jambs available in building panel covers.

C. Ridge Vent: Manufacturer's standard pre-engineered ridge cap or ridgelite, flashings, and eave and gable trim. Field-fabricate minor flashings as indicated on approved Shop Drawings.

1. Provide manufacturer's standard ridge vents as indicated on Drawings.
2. Continuous Vented Ridge: 12 square inches per linear foot.

D. Standing-Seam, Vertical-Rib, Metal Roof Panels: Formed with vertical ribs at panel edges and intermediate stiffening ribs symmetrically spaced or a flat pan between ribs; designed for sequential installation by mechanically attaching panels to supports using concealed clips located under one side of panels and engaging opposite edge of adjacent panels.

1. Material: Zinc-coated (galvanized) or aluminum-zinc alloy-coated steel sheet, minimum 0.018-inch nominal uncoated steel thickness. Prepainted by the coil-coating process to comply with ASTM A755/A755M.

a. Exterior Finish: Two-coat fluoropolymer.
b. Color: As selected by Architect from manufacturer's full range.

2. Clips: Manufacturer's standard.
3. Joint Type: Mechanically seamed.
4. Panel Height: 2 inches unless otherwise indicated.

E. Finishes:

1. Exposed Coil-Coated Finish:

a. Two-Coat Fluoropolymer: AAMA 621. Fluoropolymer finish containing not less than 70 percent PVDF resin by weight in color coat. Prepare, pretreat, and apply coating to exposed metal surfaces to comply with coating and resin manufacturers' written instructions.

2.6 CONCRETE FOUNDATIONS AND CONCRETE SLAB-ON-GRADE

A. Refer to Section 033000 "Cast-in-Place Concrete" for ready mix concrete and related materials required for concrete foundation and concrete slab-on-grade work.

2.7 RELATED MATERIALS

A. Flashing and Trim: Zinc-coated (galvanized) or aluminum-zinc alloy-coated steel sheet, 0.018-inch nominal uncoated steel thickness, prepainted with coil coating; finished to match adjacent metal panels.

1. Provide flashing and trim as required to seal against weather and to provide finished appearance. Locations include, but are not limited to, eaves, rakes, corners, bases, framed openings, ridges, fasciae, and fillers.

B. Gutters: Zinc-coated (galvanized) or aluminum-zinc alloy-coated steel sheet, 0.018-inch nominal uncoated steel thickness, prepainted with coil coating; finished to match roof fascia and rake trim. Match profile of gable trim, complete with end pieces, outlet tubes, and other special pieces as required. Fabricate in minimum 96-inch- long sections, sized according to SMACNA's "Architectural Sheet Metal Manual."

1. Gutter Supports: Fabricated from same material and finish as gutters.
2. Strainers: Bronze, copper, or aluminum wire ball type at outlets.

C. Downspouts: Zinc-coated (galvanized) or aluminum-zinc alloy-coated steel sheet, 0.018-inch nominal uncoated steel thickness, prepainted with coil coating; finished to match metal wall panels. Fabricate in minimum 10-foot- long sections, complete with formed elbows and offsets.

1. Mounting Straps: Fabricated from same material and finish as gutters.

2.8 FASTENERS

A. General: Provide fasteners of size and type indicated that comply with requirements specified in this Article for material and manufacture.

1. Where trusses are exposed to weather, in ground contact, made from pressure-preservative treated wood, or in area of high relative humidity, provide fasteners with hot-dip zinc coating complying with ASTM A153.
2. Exposed Fastener Heads: Match color of steel panel.
3. Where steel panels or trim is attached to preservative-treated lumber, provide fasteners of unpainted Type 304 stainless steel.

B. Nails, Brads, and Staples: ASTM F1667.

1. Framing Lumber: 10d, 16d and 60d ring shank nails.
2. Machine Bolts: Minimum grade 1, A307.
3. Metal Panels: Minimum 1-1/2 inch No. 10 screw fasteners with EPDM sealing washers bearing on weather side of metal panels.

a. Match color of metal panels.

2.9 ACCESSORIES

~~A. Batting Cage Netting:~~

~~1. Manufacturers: Subject to compliance with requirements, available manufacturers include, but are not limited, to the following:~~

~~a. Batting Cages, Inc. (BCI).~~
~~b. Christensen Net Works.~~
~~c. Cover Sports.~~
~~d. West Coast Netting.~~

A. Hitting Mat:

1. Basis-of-Design Product: Subject to compliance with requirements, provide product indicated below, or comparable, Architect approved product.

a. Net World Sports Ltd.; Forza Baseball Hitting Mat; SKU: BS45132.
b. Material: Artificial turf pile; UV-resistant, 100% polyethylene.
c. Yarn: Mono-filament curly.
d. Backing: 4 mm thick, PU foam.
e. Overall Thickness with Backing: 15 mm.
f. Weight: 65 lbs.
g. Stitch Density: 63,000 stitches/m^2.
h. Gauge: 3/16 inch.
i. Size: 12 by 6 feet.
j. Color: Red.

B. Batting Cage with Pedestal Base:

1. Basis-of-Design Product: Subject to compliance with requirements, provide product indicated below, or comparable, Architect approved product.

a. Bison, Inc.; Extreme 12’ x 70’ Batting Cage; SKU: BBSBCAGE1270PM, mounted on Pedestal Base; SKU: BBSBCAGE1270PM.
b. Material: Heavy duty galvanized steel:

1) Uprights: 23/8 inch OD.
2) Cross Members: 15/8 OD.

c. Hardware: Manufacturer’s standard, galvanized steel.
d. Overall Dimensions: 12 feet (W) by 12 feet (H) by 70 (L) feet.
e. Upright Spacings: 10 foot centers.
f. Netting Mesh: 4 mm knotless polyethylene with 11/8 inch squares.
g. Metting Opening: Hook and loop closure walk through opening suspended by spring clips.
h. Mounting: Pedestal mount with 8-inch square mounting plate for attachment to concrete slab.
i. Finish: Manufacturer’s standard finish.

C. Baseball Pitcher's Safety Screen:

1. Basis-of-Design Product: Subject to compliance with requirements, provide product indicated below, or comparable, Architect approved product.

a. Bison, Inc.; Baseball Pitcher's Safety Screen; SKU: BBSBLSCREEN.
b. Framework and Leg Material: Heavy duty galvanized steel:
c. Overall Dimensions: 7 by 7 feet with 3-1/2 by 3-1/2 foot opening in the top corner.
d. Reversable Screen: Accommodates left-handed and right-handed pitchers.
e. Mesh: 2.5 mm black polyethylene mesh net.
f. Mounting: Portable unit.
g. Finish: Manufacturer's standard finish.
h. Quantity: Two baseball pitcher safety screens.

D. Softball Pitcher's Safety Screen:

1. Basis-of-Design Product: Subject to compliance with requirements, provide product indicated below, or comparable, Architect approved product.

a. Bison, Inc.; Softball Pitcher's Safety Screen; SKU: BBSBCSCREEN.
b. Framework and Leg Material: Heavy duty galvanized steel:
c. Overall Dimensions: 7 by 7 feet.
d. Reversable Screen: Accommodates left-handed and right-handed pitchers.
e. Mesh: 2.5 mm black polyester mesh net.
f. Mounting: Portable unit.
g. Finish: Manufacturer's standard finish.
h. Quantity: One softball pitcher safety screen.

2.10 FABRICATION

A. Shop-fabricate wood trusses in TPI inspected plant.

B. Cut truss members to accurate lengths, angles, and sizes to produce close-fitting joints.

C. Fabricate metal connector plates to sizes, configurations, thicknesses, and anchorage details required to withstand design loads for types of joint designs indicated.

D. Assemble truss members in design configuration indicated; use jigs or other means to ensure uniformity and accuracy of assembly with joints closely fitted to comply with tolerances in TPI 1. Position members to produce design camber indicated.

1. Fabricate wood trusses within manufacturing tolerances in TPI 1.

E. Connect truss members by metal connector plates located and securely embedded simultaneously in both sides of wood members by air or hydraulic press.

PART 3 - EXECUTION

3.1 EXAMINATION

A. Examine substrates, areas, and conditions, with erector present, for compliance with requirements for installation tolerances and other conditions affecting performance of work.

B. Before erection proceeds, survey elevations and locations of concrete- and masonry-bearing surfaces and locations of anchor rods, bearing plates, and other embedments to receive structural framing, with erector present, for compliance with requirements and metal building system manufacturer's tolerances.

1. Engage land surveyor to perform surveying.

C. Verify that mechanical and electrical utilities are in correct position.

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

3.2 PREPARATION

A. Provide temporary shores, guys, braces, and other supports during erection to keep framing secure, plumb, and in alignment against temporary construction loads and loads equal in intensity to design loads. Remove temporary supports when permanent framing, connections, and bracing are in place unless indicated otherwise.

3.3 ERECTION OF FRAMING

A. General: Do not use materials that are unsound, warped, improperly finished, or with defective surfaces, sizes, or patterns.

1. Comply with frame manufacturer's approved Shop Drawings for details and building erection.
2. Comply with NFBA document “Accepted Practices for Post-frame Construction Framing Tolerances.”

B. Columns:

1. Auger hole to depth of diameter indicated on Drawings.
2. Pour ready mix concrete pad in bottom of each hole per Drawings.
3. Install hold down blocks at bottom of each column per approved Shop Drawings.
4. Accurately position column in hole.
5. Backfill with dry soil compacted in 8 inch lifts.

C. Wall Girts: Install at centers indicated on Drawings.

1. If required, install overhang framing at top of wall girts.

D. Trusses:

1. Set trusses in place in center of column using lifting methods as approved by manufacturer.
2. When trusses are properly positioned, install 1/2 inch by 5-1/2 inch machine bolt and manufacturer recommended 20d ring shank nails through 2 of column laminates and truss heel.
3. Brace trusses per WTCA guidelines and BCSI Manual

E. Purlins: Install purlins with fasteners and at spacings per approved Shop Drawings.

F. Truss Ties: Install truss ties at locations recommended by structure manufacture and per approved Shop Drawings

1. Run truss ties from end wall to end wall.

G. Incidental Framing: Install 2 inch by 4 inch or 2 inch by 6 inch blocking as required per structure manufacturers recommendations.

3.4 METAL PANEL INSTALLATION, GENERAL

A. Install metal panels per manufacturer's established construction procedures.

B. Install metal panels and components plumb, square, straight, and true to lines, and to assure freedom from rattles.

C. Take care when cutting prefinished materials to ensure cuttings do not remain on finished surface.

D. Properly install fasteners taking care to not under- or overdrive.

3.5 METAL PANEL INSTALLATION

A. Roofing Panels: Install panels perpendicular to supports aligned straight with end fascias and fasten to purlins. Anchor with fasteners at spacings recommended by manufacturer and design loads.

B. Wall Panels: Install metal panels perpendicular to wall girt and purlin supports, aligned level and plumb. Anchor with fasteners at spacings recommended by manufacturer and design loads.

C. Vented Ridges: Fasten vented ridges to structure as indicated on Drawings, maintaining manufacturer's minimum clear throat opening.

D. Trim Items: Install trim items at base, wainscot transitions, corners, top of steel siding, facia, gables, and ridges using no less than 1 inch screw fasteners.

1. Trim items shall be installed at the base, at any wainscot transition, corners, top of steel siding, fascias, gables and ridge using appropriate 1" screw fasteners.

E. Closure Strips: Provide closure strips at top and bottom of roofing panels.

3.6

A. 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 with no joints allowed within 24 inches 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 deep, filled with mastic sealant (concealed within joints).

B. Gutters: Join sections with riveted-and-soldered or lapped-and-sealed joints. Attach gutters to eave with gutter hangers spaced as required for gutter size, but not more than 36 inches o.c. using manufacturer's standard fasteners. Provide end closures and seal watertight with sealant. Provide for thermal expansion.

C. Downspouts: Join sections with 1-1/2-inch telescoping joints. Provide fasteners designed to hold downspouts securely 1 inch away from walls; locate fasteners at top and bottom and at approximately 60 inches o.c. in between.

1. Provide elbows at base of downspouts to direct water away from building.
2. Tie downspouts to underground drainage system indicated.

3.7 BATTING CAGE NETTING INSTALLATION

A. Install batting cage netting according to manufacturer's written instructions and approved Shop Drawings.

END OF SECTION 133400

SECTION 133416 – BASEBALL AND SOFTBALL BLEACHERS

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract apply to this Section.

1.2 SUMMARY

A. This Section includes the following:

1. Baseball and softball bleachers.

1.3 DEFINITIONS

A. Railings: Guards, handrails, and similar devices used for protection of occupants at open-sided floor areas, pedestrian guidance and support, visual separation, or wall protection.

1.4 ACTION SUBMITTALS

A. Product Data: Include construction details, material descriptions, dimensions of individual components and profiles, and finishes for bleachers.

B. Shop Drawings: Include plans, foundations, elevations, sections, details, and attachments to other work.

1. Indicate foundation design required by local soil conditions.
2. Include structural analysis data signed and sealed by the qualified professional engineer registered in the State of South Carolina responsible for their preparation.
3. Include certification signed and sealed by the qualified professional engineer responsible for their preparation attesting that the design meets the requirements of the contract documents.

C. Delegated-Design Submittal: For bleachers indicated to comply with performance requirements and design criteria, including analysis data signed and sealed by the qualified professional engineer responsible for their preparation.

1.5 INFORMATIONAL SUBMITTALS

A. Qualification Data: For Erector. For professional engineer.

B. Field quality-control reports.

C. Sample Warranties: For special warranties.

1.6 CLOSEOUT SUBMITTALS

A. Operation and Maintenance Data: For bleachers to include in maintenance manuals.

1.7 QUALITY ASSURANCE

A. Erector Qualifications: An experienced erector who has specialized in erecting and installing work similar in material, design, and extent to that indicated for this Project and who is trained and approved by manufacturer.

B. Manufacturer Qualifications: An experienced firm with a minimum of 5 years' record of successful completion of projects of similar type and scope.

C. Manufacturer's Engineering Responsibility: Preparation of data for bleachers, including Shop Drawings, and comprehensive engineering analysis by a qualified professional engineer.

D. Source Limitations: Obtain bleachers components through one source from a single manufacturer.

E. Safety Standard: Provide bleachers that comply with requirements in ICC 300.

F. Welding: Qualify procedures and personnel according to AWS D1.1 "Structural Welding Code - Steel" and AWS D1.3 "Structural Welding Code - Sheet Steel."

G. Accessibility Requirements: Provide bleachers that comply with requirements in the U.S. Architectural & Transportation Barriers Compliance Board's "Americans with Disabilities Act (ADA), Accessibility Guidelines for Buildings and Facilities (ADAAG)" and NCSBC.

H. Pre-Erection Conference: Conduct conference at Project site to comply with requirements in Division 1 Section "Project Management and Coordination." Review methods and procedures related to bleachers and bleachers including, but not limited to, the following:

1. Inspect and discuss condition of foundations and other preparatory work performed by other trades.
2. Review structural load limitations.
3. Review and finalize construction schedule and verify availability of materials, Erector's personnel, equipment, and facilities needed to make progress and avoid delays.
4. Review required testing and inspecting procedures.

1.8 PROJECT CONDITIONS

A. Field Measurements: Verify actual locations of other construction that will interface with bleachers by field measurements before fabrication and indicate measurements on Shop Drawings.

1.9 WARRANTY

A. Special Warranty: Manufacturer's standard form in which manufacturer agrees to repair or replace components of bleachers that fails in materials or workmanship within the specified warranty period. Failures include, but are not limited to, the following:

1. Structural failures including, but not limited to, excessive deflection.
2. Failure of system to meet performance requirements.
3. Deterioration of metals, metal finishes, and other materials beyond normal weathering.

B. Warranty Period: Five years from date of Substantial Completion for the structural and three years for metal finishes for material and labor.

PART 2 - PRODUCTS

2.1 PERFORMANCE REQUIREMENTS

A. Delegated Design: Design bleachers and foundations, including comprehensive engineering analysis by a qualified professional engineer, using performance requirements and design criteria indicated.

B. Structural Performance: Bleachers shall withstand the effects of gravity loads and the following loads and stresses within limits and under conditions indicated according to ASCE/SEI 7 and ICC 300 "Standard for Bleachers, Folding and Telescopic Seating, and Bleachers," where applicable:

1. Live Loads: 100 psf. Unless noted otherwise but not less than required by ICC 300.
2. Live Load on Seat and Tread Plank: 120 pounds per linear foot
3. Dead Load: Actual Material Weights
4. Lateral Sway Stress: As indicated on Structural Drawings.
5. Perpendicular Sway Stress: As indicated on Structural Drawings.
6. Seismic Loads: As indicated on Structural Drawings.
7. Wind Loads: As indicated on Structural Drawings.
8. Snow Loads: As indicated on Structural Drawings.
9. Deflection Limits: Design framing system to withstand design loads without deflections greater than the following:

a. 1/200 of the member span dead plus live load deflection.

C. Seismic Performance: Provide bleachers capable of withstanding the effects of earthquake motions determined according to ASCE 7, "Minimum Design Loads for Buildings and Other Structures."

D. Thermal Movements: Provide bleachers 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.

2.2 MANUFACTURERS

A. Manufacturers: Subject to requirements, provide products by one of the following subject to approval of Architect:

1. Belson Outdoors, LLC.
2. Bison Inc.
3. Dant Clayton Corporation.
4. E&D Specialty Stands, Inc.
5. Jaypro Sports, LLC.
6. Outdoor Aluminum.
7. Southern Bleacher Company.
8. Sturdisteel.

2.3 MATERIALS

A. Aluminum: Alloy and temper recommended by aluminum producer and manufacturer for type of use and finish indicated, and as follows:

1. Sheet: ASTM B 209.
2. Extruded Shapes: ASTM B 221.
3. Rolled Tread Plate: ASTM B 632/B 632M, Alloy 6061-T4 or 6061-T6.

B. Zinc-Coated (Galvanized) Steel Sheet: ASTM A 653/A 653M, commercial quality, G90 coating designation; mill phosphatized.

C. Steel Structural Shapes: ASTM A36; ASTM A36/A572 grade 50; ASTN A572 grade 50; ASTM A529-50; or ASTM A500 grade B.

D. Steel Mechanical Tubing: ASTM A 513, welded steel mechanical tubing, hot-dip galvanized according to ASTM A 123/A 123M.

E. Anchorages: Anchor bolts, hot-dip galvanized according to ASTM A 123.

F. Concrete for Bleachers Foundations: Minimum compressive strength 3000 psi/28 days. Refer to requirements of Division 03 Section "Cast-in-Place Concrete."

G. Chain-Link Fence Fabric: Provide fabric in one-piece heights measured between top and bottom of outer edge of selvage knuckle or twist. Comply with ASTM A 392, CLFMI CLF 2445, and requirements indicated below:

1. Steel Wire Fabric: Metallic-coated wire with a minimum diameter of 0.120 inches.

a. Mesh Size: 2-1/8 inches.
b. Weight of Metallic (Zinc) Coating: ASTM A 392, Type II, Class 2, 2.0 oz./sq. ft. with zinc coating applied after weaving.

2. Selvage: Knuckled at both selvages.

2.4 SOFTBALL AND BASEBALL BLEACHERS

A. Softball and Baseball Bleacher Sizes: As indicated on Drawings.

B. Understructure:

1. Structural steel, with galvanized finish or aluminum, to meet performance requirements.
2. Frame spacing: As determined by manufacturer based upon requirements.

C. Row Spacing and Rise: As standard with manufacturer.

D. Seat Planks:

1. Extruded aluminum, 6063-T6, with ribbed top and anodized finish.
2. Size: as standard with manufacturer, with end caps on exposed end and matching joint sleeve assembly.

E. Tread Planks: Interlocking / Fully Closed System

1. Extruded aluminum, 6063-T6, with ribbed top, mill finish.
2. Depth as standard with manufacturer, with end caps on exposed end and matching joint sleeve assembly.

F. Step Planks:

1. Extruded aluminum, 6063-T6, with ribbed top, mill finish.
2. Depth: as standard with manufacturer, with end caps on exposed end.
3. Contrasting color nosing.

G. Riser Planks:

1. Extruded aluminum, 6063-T6, mill finish.
2. Height: as standard with manufacturer, with end caps on exposed end and matching joint sleeve assembly.

H. Railings:

1. Anodized aluminum pipe railing with formed elbows at corners and caps at end of straight runs, fastened to framing system.
2. Pipe size: 1.66 inch outside diameter.
3. Infill: Aluminum square tube or chain-link fence fabric.
4. Comply with Wheelchair-Accessible Seating: At locations indicated on Drawings.

I. Accessories:

1. Mid-aisle handrails located at centerline of each vertical aisle with seating on both sides.
2. End rails (guards) that are fixed.

3. Back rails (guards) along rear of units.

2.5 FABRICATION

A. Fabricate understructure from structural steel members in size, spacing, and form required to support design loads specified in referenced safety standard.

B. Weld understructure to comply with applicable AWS standards.

C. Round corners and edges of components and exposed fasteners to reduce snagging and pinching hazards.

D. Form exposed sheet metal with flat, flush surfaces, level and true in line, and without cracking and grain separation.

E. Seating Supports: Fabricate supports to withstand, without damage to components, the forces imposed by use of stands without failure or other conditions that might impair the usefulness of seating units.

2.6 FINISHES, GENERAL

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

B. Finish metal fabrications after assembly.

2.7 ALUMINUM FINISHES

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

B. Class II, Clear Anodic Finish: 6063-T6 clear anodized 204R1, AA-M10C22A31, Class II., where indicated.

2.8 STEEL FINISHES

A. Galvanizing: Hot-dip galvanize items as indicated to comply with ASTM A 153/A 153M for steel and iron hardware and with ASTM A 123/A 123M for other steel and iron products.

PART 3 - EXECUTION

3.1 EXAMINATION

A. Examine areas where bleacherss are to be installed, with Installer present, for compliance with requirements for installation tolerances and other conditions affecting performance of work.

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

3.2 FOUNDATION

A. Install concrete footings and anchors in accordance with approved submittals and requirements of Division 03 Section “Cast-in-Place Concrete.”

3.3 INSTALLATION

A. Install bleachers to comply with referenced safety standard and manufacturer's written instructions.

3.4 ADJUSTING AND CLEANING

A. Clean installed bleachers on exposed and semiexposed surfaces.

B. Touch up shop-applied finishes or replace components as required to restore damaged or soiled areas.

END OF SECTION 133416