ALL OTHER STRUCTURAL SHAPES ASTM A36

4. CONNECTIONS:

   A. CONNECTIONS FOR NEW STEEL WORK SHALL BE STANDARD AISC CONNECTIONS USING 3/4" DIA. HIGH-STRENGTH BEARING, TYPE N BOLTS, U.O.N. PROVIDE SLIP CRITICAL CONNECTIONS WHERE INDICATED ON DRAWINGS.

   B. MINIMUM DEPTH OF SHEAR CONNECTIONS SHALL BE HALF THE BEAM DEPTH, TWO BOLT MINIMUM.

   C. ALL BOLTS FOR EXTERIOR APPLICATIONS SHALL BE MECHANICALLY GALVANIZED ASTM A325 BOLTS.

   D. MINIMUM SIZE WELDS SHALL BE IN ACCORDANCE WITH AISC. 1/4" FILLET UNLESS NOTED OTHERWISE.

   E. ELECTRODES SHALL BE SUITED TO GRADE AND METALLURGICAL COMPOSITION OF BASE METAL.

   F. STRUCTURAL WELDING SHALL BE PERFORMED BY AWS CERTIFIED WELDERS.

   G. ALL CONNECTIONS, UNLESS INDICATED AS BEING FULLY DESIGNED ON THE STRUCTURAL DRAWINGS, SHALL BE DESIGNED AND DETAILED BY A LICENSED PROFESSIONAL ENGINEER REGISTERED IN THE PROJECT JURISDICTION. THE DESIGN AND DETAILING SHALL COMPLY WITH ALL APPLICABLE CODES AND SPECIFICATION SECTIONS.

   H. SEE PLANS AND DETAILS FOR CONNECTION DESIGN FORCES. UNLESS NOTED OR DETAILED ALL BEAM CONNECTIONS SHALL BE SIMPLE SHEAR CONNECTIONS. WHERE NO REACTION IS PROVIDED THE BEAM SHALL BE ASSUMED TO CARRY A MINIMUM OF 120% OF ALLOWABLE UNIFORM LOAD IN KIPS FOR BEAMS LATERALLY SUPPORTED AS GIVEN IN THE AISC STEEL CONSTRUCTION MANUAL.

   I. ALL WELDED OR BOLTED CONNECTIONS SHALL HAVE A MINIMUM UNFACTORED SHEAR CAPACITY OF 8 KIPS.

   J. ALL BOLTS SHALL BE SNUG TIGHT UNLESS SPECIFICALLY NOTED OTHERWISE. BOLTING FOR STRUCTURAL STEEL SHALL CONFORM TO THE PROVISIONS OF THE RESEARCH COUNCIL ON STRUCTURAL CONNECTIONS "SPECIFICATION FOR STRUCTURAL JOINTS USING ASTM A325 OR A490 BOLTS."

   K. ALL BOLTS, NUTS, WASHERS AND RELATED HARDWARE FOR EXTERIOR APPLICATIONS SHALL BE GALVANIZED.

   L. BOLT HOLES FOR STEEL CONNECTIONS AT EXPANSION JOINTS SHALL BE HOIZONTALLY LONG SLOTTED.

5. STEEL FRAMING SHALL BE PROPERLY GUYED UNTIL AFTER FINAL CONNECTIONS ARE MADE.

6. STEEL FRAME SHALL BE ALIGNED AND PLUMBED WITHIN AISC TOLERANCES BEFORE PROCEEDING WITH FINAL CONNECTIONS.

7. PROVIDE 1/4" SETTING PLATES UNDER ALL STEEL COLUMNS, UNLESS OTHERWISE NOTED.

8. BASE PLATES SHALL BE SHOP WELDED TO COLUMNS AND POSTS.

9. ALL CAP PLATES SHALL MATCH THICKNESS OF BEAM FLANGE ABOVE (1/2" MINIMUM) FOR BEAMS BEARING ON COLUMNS.

10. PROVIDE MASONRY ANCHORS AT 16" O.C. ON BEAMS AND COLUMNS WITHIN, OR ADJACENT TO, MASONRY WALLS.

11. HOLES FOR ARCHITECTURAL (MECHANICAL) DETAILS SHALL BE PUNCHED OR DRILLED IN SHOP. SEE OTHER DRAWINGS FOR LOCATION.

12. FIELD CUTTING OR BURNING OF STRUCTURAL STEEL IS PROHIBITED EXCEPT WITH THE WRITTEN APPROVAL OF THE ENGINEER.

15. SEE ARCHITECTURAL DRAWINGS FOR ADDITIONAL MISCELLANEOUS STEEL NOT SHOWN ON STRUCTURAL DRAWINGS. ALL MISCELLANEOUS METAL NOT SPECIFICALLY DESIGNED IN STRUCTURAL DRAWINGS SHALL BE PERFORMANCE SPECIFICED AND DESIGNED BY THE CONTRACTOR TO MEET REQUIRED LOADS APPLIED TO ASSEMBLY.

16. HOT-DIP GALVANIZING FOR ALL EXTERIOR EXPOSED STEELS SHALL CONFORM TO ASTM A_123. REPAIR SCRATCHED OR ABRADED GALVANIZED SURFACES WITH ZINC-RICH PAINT. AFTER GALVANIZING, STRAIGHTEN MEMBERS TO MEET AISC STANDARD MILL TOLERANCES.

17. GALVANIZING FOR EXTERIOR EXPOSED STEEL SHALL CONFORM TO ASTM A-123. REPAIR SCRATCHED OR ABRADED GALVANIZED METAL SURFACES WITH ZINC-RICH COATING. AFTER GALVANIZING, STRAIGHTEN MEMBERS TO MEET AISC STANDARD MILL TOLERANCES.

18. ALL LINTELS, SHELF ANGLES, BEAMS AND PLATES INCLUDING THEIR ASSOCIATED SHIMS AND ACCESSORIES IN DIRECT CONTACT WITH THE EXTERIOR WYTHE OF MASONRY SHALL BE HOT-DIP GALVANIZED. BOLTS FOR THESE MEMBERS SHALL BE MECHANICALLY GALVANIZED. ADDITIONAL MEMBERS/ASSEMBLIES TO BE HOT-DIP GALVANIZED WHERE NOTED ON THE DRAWINGS. WHERE GALVANIZED PLATES, ANGLES OR OTHER MISCELLANEOUS MEMBERS REQUIRE WELDING (EITHER FIELD OR SHOP) TO NON-GALVANIZED BEAMS OR COLUMNS, MASK POINTS TO BE WELDED AND TOUCH-UP WITH ZINC-RICH PAINT AFTER WELDING.

19. SHOP DRAWINGS SHALL BE SUBMITTED FOR REVIEW PRIOR TO FABRICATION.

20. PROVIDE ADJUSTABLE CONNECTIONS FOR ALL MEMBERS DESIGNATED AS AESS TO FACILITATE ADJUSTMENT TO ACHIEVE THE SPECIFIED TOLERANCE.

21. ALL MOMENT CONNECTIONS AND FULL PENETRATION WELDS ARE TO BE INSPECTED AND TESTED.

22. PRIOR TO DETAILING CONNECTIONS FOR THE STRUCTURAL STEEL, THE STEEL FABRICATOR SHALL SUBMIT FOR APPROVAL REPRESENTATIVE DETAILS AND CALCULATIONS FOR EACH TYPE OF STRUCTURAL STEEL CONNECTION TO BE UTILIZED. DETAILS SHALL INCLUDE DESIGN CAPACITIES. CONNECTION CALCULATIONS SHALL BE PROVIDED NO LATER THAN SUBMITTAL OF SHOP DRAWINGS. STEEL SHOP DRAWING REVIEW IS CONTINGENT UPON RECEIPT OF CALCULATIONS.

23. GROUT UNDER STEEL PLATES SHALL BE NONMETALLIC, SHRINKAGE RESISTANT GROUT CONFORMING TO ASTM C1107 HAVING A MINIMUM DESIGN COMPRESSIVE STRENGTH OF 5,000 PSI.

24. SPLICING AND PENETRATIONS OF STRUCTURAL STEEL MEMBERS IS NOT PERMITTED WITHOUT THE PRIOR APPROVAL OF THE STRUCTURAL ENGINEER. PROPOSED SPLICING OF MEMBERS SHALL BE COORDINATED AND DESIGNED BY CONTRACTOR WITH SUPPORTING DESIGN CALCULATIONS AS PART OF THE SHOP DRAWING SUBMITTAL.

25. STEEL SHALL BE FINISHED/PROTECTED AS FOLLOWS, UNO:
   A. HOT DIPPED GALVANIZED IN ACCORDANCE TO ASTM A123
      EXTERIOR STEEL EXPOSED TO WEATHER
      LINTELS IN EXTERIOR WALL CAVITIES
      BRICK RELIEF/SHELF ANGLES
   B. PAINT WITH ONE COAT OF STANDARD PRIMER PAINT
      ALL STRUCTURAL STEEL EXCEPT THOSE TO BE GALVANIZED, AREAS TO BE FIELD WELDED, AREAS TO RECEIVE FIRE-PROOFING AND AREAS TO BE EMBEDDED IN CONCRETE

   CONTRACTOR OPTION TO SUBSTITUTE MAB PLYMASTIC EPOXY PAINT AS AN ALTERNATIVE TO GALVANIZED STEEL WHERE SIGNIFICANT FIELD WELDING IS REQUIRED AND/OR HUNG STEEL PLATES SUBJECT TO WARPING EXIST.

MISC METAL FABRICATIONS

1. METAL STAIRS, LADDERS, HANDRAILS AND GUARDRAILS SHALL BE DESIGNED AND DETAILED BY FABRICATOR AND CAPABLE OF WITHSTANDING THE LISTED DESIGN CRITERIA LOADS INCLUDING COMBINED LOAD EFFECTS OF DEAD, LIVE AND SEISMIC LOADS. DESIGNER SHALL USE THE APPLICABLE LOAD COMBINATIONS OF ASCE 7 "MINIMUM DESIGN LOADS FOR BUILDINGS AND OTHER STRUCTURES".

2. STAIR STRINGERS, TREADS, PLATFORMS, HANDRAILS, GUARDRAILS, LADDERS AND THEIR CONNECTIONS TO THE BASE STRUCTURE SHALL BE DESIGNED BY A LICENSED PROFESSIONAL REGISTERED IN THE DISTRICT OF COLUMBIA.

3. PRIOR TO FABRICATION, MISC. METALS FABRICATOR SHALL SUBMIT SHOP DRAWINGS INCLUDING ATTACHMENTS TO BASE STRUCTURE WITH SIGNED AND SEALED CALCULATIONS FOR APPROVAL.

4. REFER TO ARCHITECTURAL DRAWINGS, TYPICAL DETAILS AND SPECIFICATIONS FOR ADDITIONAL INFORMATION. MISCELLANEOUS METAL FABRICATIONS ARE NOT TYPICALLY INCLUDED ON STRUCTURAL DRAWINGS.

STRUCTURAL WOOD FRAMING

1. STRUCTURAL LUMBER SHALL CONFORM TO AFPA'S NDS "NATIONAL DESIGN SPECIFICATION FOR WOOD CONSTRUCTION", WITH SUPPLEMENT "DESIGN VALUES FOR WOOD CONSTRUCTION". LUMBER GRADING AND IDENTIFICATION SHALL COMPLY WITH PROCEDURES OF DOC PS 20 "AMERICAN SOFTWOOD LUMBER STANDARD". WOOD SHALL ALSO BE IN CONFORMANCE TO AMERICAN INSTITUTE OF TIMBER CONSTRUCTION (AITC) "TIMBER CONSTRUCTION MANUAL" AS APPLICABLE.

2. STRUCTURAL LUMBER SHALL HAVE 19% MAXIMUM MOISTURE CONTENT WITH THE FOLLOWING MINIMUM PROPERTIES:
   A. SOUTHERN PINE NO.2 (OR APPROVED ALTERNATE), VISUALLY GRADED, WITH THE FOLLOWING MINIMUM PROPERTIES:
      FB = 1,500 PSI, E = 1,600,000 PSI, FC (PERP) = 565 PSI, FV = 175 PSI
   B. LAMINATED VENEER LUMBER (LVL) SHALL BE AS MANUFACTURED BY TRUSS JOIST, OR EQUIVALENT. SHALL NOT BE USED IN EXTERIOR APPLICATIONS. LVL'S SHALL HAVE THE FOLLOWING MINIMUM PROPERTIES:
      FB = 2,600 PSI, E = 2,000,000 PSI, FV = 285 PSI.

3. PLYWOOD SHALL CONFORM TO APA'S "PLYWOOD DESIGN SPECIFICATION", AND DOC PS 1 "CONSTRUCTION AND INDUSTRIAL PLYWOOD". UNLESS NOTED OTHERWISE, PANELS SHALL BE INSTALLED WITH THE LONG DIMENSION ACROSS SUPPORTS (INCLUDING EXTERIOR WALLS).

4. FASTENERS SHALL CONFORM TO THE FOLLOWING MINIMUM PROPERTIES:
   A. THRU BOLTS SHALL CONFORM WITH ANSI/ASME B18.2.1 WITH A MIN BENDING YIELD STRENGTH FYB = 45 KSI (OR ASTM A307)
   B. COMMON WIRE NAILS SHALL CONFORM TO THE REQUIREMENTS OF ASTM F1667

| | | |
|---|---|---|
| 6D | 0.113" SHANK DIA. 2" LONG | FYB = 100 KSI |
| 8D | 0.131" SHANK DIA. 2½" LONG | FYB = 100 KSI |
| 10D | 0.148" SHANK DIA. 3" LONG | FYB = 90 KSI |
| 12D | 0.148" SHANK DIA. 3¼" LONG | FYB = 90 KSI |
| 16D | 0.162" SHANK DIA. 3½" LONG | FYB = 90 KSI |
| 20D | 0.192" SHANK DIA. 4" LONG | FYB = 80 KSI |
| 30D | 0.207" SHANK DIA. 4½" LONG | FYB = 80 KSI |

   C. CUSTOM STEEL PLATE CONNECTIONS SHALL CONFORM TO ASTM A36, 1/4 INCH MINIMUM THICKNESS, UNO.
   D. FASTENERS USED WITH PREFABRICATED CONNECTORS SHALL FOLLOW MANUFACTURER LITERATURE AND RECOMMENDATIONS.

5. ALL FASTENERS AND PREFABRICATED CONNECTORS (HARDWARE) USED WITH PRESERVATIVE TREATED WOOD SHALL HAVE EITHER A HOT-DIP GALVANIZING G185 COATING ACCORDING TO ASTM A153 AND A123 OR SHALL BE STAINLESS STEEL TYPE 304 AND 316.

6. MINIMUM FASTENING SHALL CONFORM TO IBC TABLE 2304.9.1, "FASTENING SCHEDULE" UNLESS OTHERWISE NOTED.

7. CONNECTIONS MADE USING PREFABRICATED CONNECTORS MANUFACTURED BY SIMPSON STRONG TIE OR APPROVED EQUIVALENT. INSTALL CONNECTIONS IN STRICT ACCORDANCE WITH MANUFACTURER'S WRITTEN SPECIFICATIONS AND RECOMMENDATIONS.

8. MULTIPLE PLY (BUILT-UP) MEMBERS SHALL BE ATTACHED TOGETHER (ENTIRE LENGTH) WITH MINIMUM FASTENER GUIDELINES.

9. PENETRATIONS AND NOTCHES IN JOISTS, STUDS, BEAMS AND HEADERS ARE NOT PERMITTED WITHOUT APPROVAL OF ENGINEER.

10. PROVIDE SHOP DRAWINGS FOR ALL NEW FRAMING INCLUDING PRODUCT DATA FOR ALL PROPOSED MATERIAL, ACCESSORIES AND COMPONENTS.

POST-INSTALLED ANCHORS:

23. DRILL AND INSTALL POST-INSTALLED ANCHORS ACCORDING TO MANUFACTURER'S INSTALLATION INSTRUCTIONS AND CURRENT ICBO AND ICC-ES REPORTS.

24. NON-DESTRUCTIVE TESTING SHALL BE PERFORMED PRIOR TO INSTALLATION OF POST INSTALLED ANCHORS INTO EXISTING REINFORCED CONCRETE BEAMS OR COLUMNS TO DETERMINE REINFORCEMENT BAR LOCATIONS. ADJUST ANCHOR PLATE BOLT SPACING AS REQUIRED TO ACCOUNT FOR REBAR LOCATIONS.

25. EXPANSION ANCHORS SHALL BE HILTI KWIK BOLT 3 TZ OR APPROVED EQUAL.

26. ADHESIVE ANCHORS IN CONCRETE SHALL BE: HILTI HIT HY200 OR APPROVED EQUAL AND SHALL HAVE FOLLOWING MINIMUM CAPACITIES:
   V = 2500 LBS,
   T = 2500 LBS.

27. ADHESIVE ANCHORS IN MASONRY SHALL HAVE THE FOLLOWING CAPACITIES: HILTI HIT HY70 OR APPROVED EQUAL AND SHALL HAVE THE FOLLOWING MINIMUM CAPACITIES:
   V = 1500 LBS,
   T = 2000 LBS.

28. ANCHORS TO BE INSTALLED IN MASONRY SHALL BE ADHESIVE ANCHORS AND SHALL USE SCREEN TUBES.

SHORING/SCAFFOLDING

1. THE CONTRACTOR SHALL SUBMIT SHORING SHOP DRAWINGS PREPARED AND SEALED BY A PROFESSIONAL ENGINEER LICENSED IN THE PROJECT JURISDICTION.

2. SHORING AND SCAFFOLDING SHALL COMPLY WITH O.S.H.A. REGULATIONS.

3. ALL TEMPORARY EXCAVATION SUPPORT SYSTEMS ARE NOT TO BE DRIVEN.

4. THE STRUCTURAL ENGINEER WILL REVIEW SHORING SUBMITTALS ONLY FOR LOADS TRANSMITTED TO THE BUILDING STRUCTURE. SUBMITTALS SHALL CLEARLY INDICATE THE LOCATION AND MAGNITUDE OF ALL LOADS APPLIED TO THE BUILDING. THE CONTRACTOR IS RESPONSIBLE FOR DESIGN AND PERFORMANCE OF THE SHORING/SCAFFOLD SYSTEM.

JOINTS AND WATERPROOFING

1. PROVIDE CONTINUOUS WATERSTOPS, AS DESCRIBED IN THE SPECIFICATIONS, AT EACH CONSTRUCTION JOINT OF ANY CONCRETE ELEMENT EXPOSED TO SOIL OR WATER, INCLUDING THE PERIMETER WALLS, AND INTERFACES BETWEEN WALLS AND UNDERPINNING. PROVIDE WATERSTOPS, EXTENDING FROM TOP OF FOOTING TO 4'-0" BELOW GRADE. PROVIDE A 1½" BY 3½" CONTINUOUS KEY AT EACH JOINT REQUIRING WATERSTOP. SEE ARCHITECTURAL DRAWINGS AND SPECIFICATIONS FOR ADDITIONAL REQUIREMENTS.

METAL PLATE CONNECTED WOOD TRUSS NOTES

1. THE TRUSS SHALL BE DESIGNED BY THE WOOD TRUSS MANUFACTURER FOR THE LOADS INDICATED IN THE DESIGN LOADS AND FACTORS TABLE.

2. BASIC TRUSS PROFILES SHOWN ARE TO BE USED BY THE WOOD TRUSS MANUFACTURER AS A GUIDE ONLY. VARIATIONS TO THESE PROFILES MAY INCLUDE, BUT ARE NOT LIMITED TO, DIFFERING BEARING POINTS, DIFFERING BEARING WIDTHS AND RAFTER TAILS/OVERHANGS. MULTIPLE-PLY GIRDER TRUSSES MAY BE REQUIRED TO SUPPORT CONNECTING FRAMING. THE DESIGN OF THESE ADDITIONAL PROFILES IN THE RESPONSIBILITY OF THE WOOD TRUSS MANUFACTURER. SEE PLANS FOR TRUSS LOCATIONS. COORDINATE ALL TRUSS PROFILES WITH THE ARCHITECTURAL DRAWINGS.

3. THE WOOD TRUSS MANUFACTURER SHALL PROVIDE ALL HANGERS NOT SHOWN IN THE DRAWINGS AS PART OF THE ENGINEERED WOOD TRUSS ROOF SYSTEM DESIGN. PROVIDE UPLIFT CONNECTIONS AT BEARING LOCATIONS TO ACCOMMODATE THE WIND LOADS INDICATED IN THE DESIGN LOADS AND FACTORS TABLE. MINIMUM CONNECTION SHALL BE 300 LBS..

4. SUBMIT SIGNED AND SEALED TRUSS SHOP DRAWINGS AND CALCULATIONS TO THE ARCHITECT FOR REVIEW AND APPROVAL PRIOR TO FABRICATION.

5. TRUSSES SHALL BE UNLOADED AND STORED IN ACCORDANCE WITH THE MANUFACTURERS'S REQUIREMENTS. TRUSSES SHALL NOT BE UNLOADED OR STORED ON ROUGH TERRAIN. LATERAL TRUSS DEFLECTION DURING HANDLING AND INSTALLATION SHALL BE 3" IN 10'-0" MAXIMUM.

6. TRUSSES SHALL BE SPACED AT 2'-0" OC MAXIMUM. COORDINATE WEB MEMBER AND DIAGONAL BRACING LOCATIONS WITH THE MECHANICAL DRAWINGS.

7. TRUSSES SHALL BE SECURELY BRACED AND ANCHORED DURING BOTH ERECTION AND PERMANENT INSTALLATION IN ACCORDANCE WITH "COMMENTARY AND RECOMMENDATIONS FOR HANDLING, INSTALLING AND BRACING METAL PLATE CONNECTED WOOD TRUSSES" (HIB-91) AS PUBLISHED BY THE TRUSS PLATE INSTITUTE.

8. BOTTOM TRUSS CHORDS SHALL BE PERMANENTLY BRACED BY A CONTINUOUS RIGID CEILING OR CONTINUOUS LATERAL BRACING AT 2'-0" OC MAXIMUM. ALL TEMPORARY AND PERMANENT BRACING SHALL BE 2X4 GRADE-MARKED LUMBER 10' IN LENGTH MINIMUM.

SHEATHING

1. PLYWOOD SHEATHING SHALL CONFORM TO THE DEPARTMENT OF COMMERCE VOLUNTARY PRODUCT STANDARD PS1 "STRUCTURAL PLYWOOD" (DOC PS1); ORIENTED STRAND BOARD (OSB) SHALL CONFORM TO THE DEPARTMENT OF COMMERCE VOLUNTARY PRODUCT STANDARD PS2 (DOC PS2).

2. SHEATHING SHALL BE OF THE FOLLOWING THICKNESS AND PROPERTIES:
   A. ROOF: 5/8", 32/16 SPAN RATING, APA RATED EXP 1 PLYWOOD. USE PLY CLIPS OR OTHER EDGE SUPPORT AS REQUIRED FOR INSTALLATION.
   B. FLOOR: 23/32" TONGUE AND GROOVE, 32/16 SPAN RATING, APA RATED "STURD-I-FLOOR" EXP 1 OSB.
   C. WALL: 7/16", 16/16 SPAN RATING, APA RATED EXP 1 OSB.

3. ALL SHEATHING SHALL BE APA GRADE STAMPED FOR SPECIFIED SPAN RATING. INDEX STAMP SHALL BE VISIBLE ON ALL SHEETS.

4. FLOOR SHEATHING SHALL BE NAILED AND GLUED TO FRAMING USING AN APA APPROVED ELASTOMETRIC CONSTRUCTION ADHESIVE; STAGGER JOINTS.

5. SHEATHING SHALL BE INSTALLED SUCH THAT THE LONG DIRECTION IS PERPENDICULAR TO THE SPAN OF THE FLOOR FRAMING.

6. PROVIDE AWPA C9 PRESERVATIVE-TREATED PLYWOOD AS INDICATED ON DRAWINGS AND AT PLYWOOD IN CONTACT WITH MASONRY AND/OR CONCRETE.

COMMONWEALTH OF VIRGINIA
JAW HORNG TUNG
Lic. No. 045513
PROFESSIONAL ENGINEER
01/07/2021

RUST | ORLING
ARCHITECTURE

1215 CAMERON STREET
ALEXANDRIA, VA
22314

T - 703.836.3205
F - 703.548.4779
admin@rustorling.com
www.rustorling.com

Field & Tung
Structural Engineers
1210 18th Street NW
Third Floor
Washington, DC 20036
202.760.2270

# CADENCE AT PARK
VIENNA, VIRGINIA

20.014

REVISIONS

| DATE | DESCRIPTION |
|---|---|
| | |
| | |
| | |
| | |
| | |

FOR PERMIT
12.09.20

**GENERAL NOTES**

SHEET NO.

**S002**