STRUCTURAL STEEL

1. FABRICATION AND ERECTION OF STRUCTURAL STEEL SHALL CONFORM TO AISC 360 "STEEL CONSTRUCTION MANUAL" (LRFD), FIFTEENTH EDITION, 2016, INCLUDING SPECIFICATIONS FOR STRUCTURAL STEEL BUILDINGS, SPECIFICATION FOR STRUCTURAL JOINTS USING HIGH-STRENGTH BOLTS, AND AISC CODE OF STANDARD PRACTICE FOR STEEL BUILDINGS.

2. STRUCTURAL STEEL SHAPES SHALL MEET THE FOLLOWING MINIMUM SPECIFICATIONS:
   A. FLANGE SHAPES.....ASTM A992 OR A572, GRADE 50
   B. STRUCTURAL SHAPES & PLATES.....ASTM A36, A572 OR A992
   C. STEEL PIPE.....ASTM A53, GRADE B
   D. STEEL TUBING (SQUARE OR RECT.)..... ASTM A500, GRADE C
   E. (ROUND).....ASTM A501, GRADE B

3. GALVANIZED STRUCTURAL STEEL:
   A. STRUCTURAL SHAPES AND RODS.....ASTM A123.
   B. BOLTS, FASTENERS AND HARDWARE.....ASTM A153.

4. RAISED PATTERN FLOOR PLATE: ASTM A786.

5. ANCHOR RODS SHALL CONFORM TO ASTM F1554, GRADE 36 UNLESS NOTED OTHERWISE.

6. STEEL MEMBERS SHOWN ON PLAN SHALL BE EQUALLY SPACED UNLESS NOTED OTHERWISE.

7. THE STEEL STRUCTURE IS A NON-SELF-SUPPORTING STEEL FRAME AND IS DEPENDENT UPON DIAPHRAGM ACTION OF THE METAL (ROOF/FLOOR) DECK AND ATTACHMENT TO THE MASONRY WALLS FOR STABILITY AND FOR RESISTANCE TO WIND AND SEISMIC FORCES. PROVIDE ALL TEMPORARY SUPPORTS REQUIRED FOR STABILITY AND FOR RESISTANCE TO WIND AND SEISMIC FORCES UNTIL THESE ELEMENTS ARE COMPLETE AND ARE CAPABLE OF PROVIDING THIS SUPPORT.

8. CUTS, HOLES, COPING, ETC. REQUIRED FOR OTHER TRADES OR FIELD CONDITIONS SHALL BE SHOWN ON THE SHOP DRAWINGS AND MADE IN THE SHOP. CUTTING OR BURNING OF MAIN STRUCTURAL MEMBERS IN THE FIELD WILL NOT BE PERMITTED.

9. THE GENERAL CONTRACTOR AND STEEL ERECTOR SHALL NOTIFY THE STRUCTURAL ENGINEER OF ANY FABRICATION OR ERECTION ERRORS OR DEVIATIONS AND RECEIVE WRITTEN APPROVAL BEFORE ANY FIELD CORRECTIONS ARE MADE.

10. BEAMS AND GIRDERS SHALL HAVE BEAM WEB HOLES AS INDICATED ON THE STRUCTURAL DRAWINGS. ALL HOLES SHALL BE CENTERED AT MID-DEPTH OF THE BEAM UNLESS OTHERWISE NOTED. ALL RECTANGULAR WEB HOLES SHALL HAVE A MINIMUM CORNER RADIUS OF 5/8" OR TWICE THE THICKNESS OF THE BEAM WEB, WHICHEVER IS GREATER. ALL WEB OPENINGS SHALL BE MACHINE OXYGEN CUT. MANUAL CUTTING OR BURNING IS NOT PERMITTED. COORDINATE LOCATION AND SIZE OF HOLE WITH MECHANICAL CONTRACTOR PRIOR TO REVIEW BY THE STRUCTURAL ENGINEER.

11. STEEL SHOP DRAWINGS SHALL BE COORDINATED WITH STAIR DETAILS. IF HANGER RODS ARE USED, PROVIDE FITTED WELDED STIFFENER PLATE 1/4" THICK MIN. ALONGSIDE HANGER LOCATION.

12. SPANDRELS AND COLUMNS ADJACENT TO MASONRY SHALL HAVE ADJUSTABLE MASONRY TIES.

13. SPLICING OF STRUCTURAL STEEL MEMBERS WHERE NOT DETAILED ON THE CONTRACT DOCUMENTS IS PROHIBITED WITHOUT PRIOR WRITTEN APPROVAL OF THE STRUCTURAL ENGINEER AS TO LOCATION, TYPE OF SPLICE AND CONNECTION TO BE MADE.

14. BEAMS SHALL BE CAMBERED UPWARD WHERE SHOWN ON THE CONTRACT DOCUMENTS. WHERE NO UPWARD CAMBER IS INDICATED, ANY MILL CAMBER SHALL BE DETAILED UPWARD IN THE BEAMS. CAMBER INDICATED ON PLAN IS AFTER FINAL ERECTION INCLUDING MILL TOLERANCES.

15. HEADED CONCRETE ANCHORS SHALL BE NELSON HEADED CONCRETE ANCHORS (OR APPROVED EQUAL), AND SHALL CONFORM TO ASTM A108. ANCHORS SHALL BE AUTOMATICALLY END WELDED WITH SUITABLE STUD WELDING EQUIPMENT IN THE SHOP OR IN THE FIELD. WELDING SHALL BE IN ACCORDANCE WITH THE RECOMMENDATIONS OF THE NELSON STUD WELDING SYSTEMS COMPANY. LENGTH OF STUDS SHALL BE HEIGHT OF METAL DECK + 1-1/2". STUD HEIGHT SHALL BE FINAL STUD HEIGHT AFTER MELT OFF.

16. DEFORMED BAR ANCHORS (D.B.A.) SHALL BE NELSON DEFORMED BAR ANCHORS (OR APPROVED EQUAL), AND SHALL BE MADE FROM COLD-DRAWN WIRE CONFORMING TO ASTM A1064. ANCHORS SHALL BE AUTOMATICALLY END WELDED WITH SUITABLE WELDING EQUIPMENT IN THE SHOP OR IN THE FIELD. WELDING SHALL BE IN ACCORDANCE WITH THE RECOMMENDATIONS OF THE NELSON STUD WELDING COMPANY OR THE KSM WELDING SYSTEMS COMPANY.

17. PROVIDE WELDED STIFFENER PLATES ON BOTH SIDES OF THE WEB OF BEAMS AT POINTS OF CONCENTRATED LOADS INCLUDING BEAMS SUPPORTING COLUMNS OR RUNNING OVER THE TOPS OF COLUMNS, OR OTHER BEAMS. MINIMUM STIFFENER PLATE THICKNESS SHALL BE 3/8" OR FLANGE THICKNESS OF COLUMN ABOVE OR BELOW OR BEAM WEB THICKNESS ABOVE OR BELOW, WHICHEVER IS GREATER.

18. FIELD WELDED SURFACES WITHIN FOUR (4) INCHES OF WELD SHALL BE CLEANED AND GROUND SMOOTH. AFTER WELDING COAT THE EXPOSED AREA WITH APPROPRIATE PRIMER/PAINTS AS SPECIFIED.
   A. IF STEEL IS GALVANIZED, COAT THE EXPOSED AREA WITH GALVANIZING REPAIR PAINT. GALVANIZING REPAIR PAINT SHALL BE A HIGH ZINC DUST CONTENT PAINT COMPLYING WITH FEDERAL SPECIFICATIONS DOD-P-21035A OR SSPC-PAINT-20, COLD GALVANIZING COMPOUND BY ZRC PRODUCTS CO. OR EQUAL.

19. REFER TO ARCHITECTURAL DRAWINGS FOR FIREPROOFING REQUIREMENTS. DELETE PAINT ON ALL STEEL TO RECEIVE SPRAYED-ON FIREPROOFING OR CONCRETE ENCASEMENT.

20. ALL DISSIMILAR METALS SHALL BE TREATED OR PROPERLY SEPARATED TO PREVENT GALVANIC AND/OR CORROSIVE EFFECTS.

21. ALL STEEL SHALL BE PAINTED WITH SHOP STANDARD PRIMER UNLESS NOTED OTHERWISE.

22. STEEL ANGLES AND PLATES ALONG WITH BOLTS AND WASHERS, IN DIRECT CONTACT WITH EXTERIOR FINISH MASONRY, AND ALL EXTERIOR EXPOSED STRUCTURAL STEEL SHALL BE PAINTED WITH INORGANIC ZINC PRIMER

23. ALL EXPOSED STEEL (INCLUDING BUT NOT LIMITED TO DUNNAGE FRAMING, SCREEN WALL FRAMING, CANOPY FRAMING, ETC.) SHALL BE HOT DIP GALVANIZED. ANY POINTS OF WELDING SHALL BE TOUCHED UP IN THE FIELD WITH A ZINC-RICH PAINT BY THE STEEL ERECTOR.

24. ALL STEEL BELOW SLABS ON GRADE SHALL RECEIVE TWO (2) COATS OF BITUMINOUS PAINT - OR 3" MINIMUM CONCRETE COVER.

25. ALL DAMAGED GALVANIZED SURFACES SHALL BE REPAIRED BY APPLYING AN ORGANIC ZINC REPAIR PAINT COMPLYING WITH THE REQUIREMENTS OF ASTM A780. GALVANIZING REPAIR PAINT SHALL CONTAIN 95% ZINC BY WEIGHT. THICKNESS OF APPLIED GALVANIZING REPAIR PAINT SHALL BE NO LESS THAN THE COATING THICKNESS REQUIRED BY ASTM A123 OR A153 AS APPLICABLE.

26. ALL STRUCTURAL STEEL INCLUDING BOLTS AND OTHER HARDWARE THAT IS SUBJECT TO WETTING WITH SALT-LADEN WATER OR OTHER MILD CHEMICAL ATTACK (SUCH AS INDOOR SWIMMING POOL AREAS) SHALL BE COMMERCIAL BLAST CLEANED AND PAINTED WITH THREE COATS OF EPOXY PAINT IN ACCORDANCE WITH STEEL STRUCTURES PAINTING COUNCIL PAINTING SYSTEM SPECIFICATION NO. 13.01. A URETHANE TOPCOAT SHALL BE PROVIDED FOR ALL STEEL EXPOSED TO VIEW.

REBAR/SPLICING

1. PROVIDE TWO (2) #3 X 4'0" AT ALL RE-ENTRANT CORNERS, PLACED ON THE DIAGONAL WITH 1 1/2" CLEARANCE FROM THE CORNER AND TOP OF SLAB. REFER TO DETAIL.

2. SPLICES IN REINFORCING STEEL SHALL BE MADE ONLY AT THOSE LOCATIONS WHERE SPLICES ARE SHOWN ON THE STRUCTURAL DRAWINGS AND AT THOSE LOCATIONS WHERE SPLICES HAVE BEEN DETAILED ON THE REINFORCING STEEL PLACEMENT DRAWINGS THAT HAVE BEEN REVIEWED AND APPROVED BY THE ENGINEER OF RECORD. ALL SPLICES SHALL BE CLASS "B" TENSION LAP SPLICES (SEE TENSION DEVELOPMENT LENGTH TABLE IN TYPICAL CONCRETE DETAILS), EXCEPT WHERE INDICATED OTHERWISE ON THE STRUCTURAL DRAWINGS. MECHANICAL SPLICE COUPLERS CAPABLE OF DEVELOPING 125% OF THE YIELD STRENGTH OF THE REINFORCING STEEL MAY BE USED INSTEAD OF TENSION LAP SPLICES AT THE CONTRACTOR'S OPTION AT ANY LOCATION. COMPRESSION LAP SPLICES (SEE COMPRESSION DEVELOPMENT AND LAP SPLICE LENGTHS TABLE IN TYPICAL CONCRETE DETAILS) MAY BE USED ONLY AT THOSE LOCATIONS WHERE SUCH SPLICES ARE SPECIFICALLY INDICATED. STAGGER SPLICES WHERE REQUIRED TO PROVIDE 1 1/2" CLEAR SPACING BETWEEN REINFORCING STEEL AT SPLICE LOCATIONS.

3. WHEREVER POSSIBLE, SPLICES OF MILD STEEL SHALL BE MADE IN A COMPRESSION AREA. NO MORE THAN 50% OF BARS (ALTERNATED) SHALL BE SPLICED IN A TENSION AREA.

4. VERTICAL DOWELS PROJECTING OUT OF FOUNDATIONS INTO WALLS SHALL BE THE SAME SIZE AND SPACING AS THE VERTICAL REINFORCING STEEL IN THE WALL, U.N.O. AND SHALL BE INSTALLED FOR THE FULL DEPTH OF THE FOUNDATION AND TERMINATE WITH STANDARD 90 DEGREE HOOKS, U.N.O.; VERTICAL DOWELS PROJECTING OUT OF THE TOPS OF WALLS INTO SLABS SHALL BE THE SAME SIZE AND SPACING AS THE VERTICAL STEEL IN THE WALLS, U.N.O. AND SHALL EXTEND TO THE TOP OF THE SLAB AND TERMINATE WITH STANDARD 90 DEGREE HOOKS, U.N.O.; ALL DOWELS SHALL BE SPLICED WITH CLASS "B" TENSION LAP SPLICES TO THE VERTICAL REINFORCING STEEL IN THE WALLS.

5. ALL HOOKS IN REINFORCING STEEL SHALL BE STANDARD 90 DEGREE HOOKS, U.N.O.

6. ALL HOOKS ON #5 AND SMALLER TOP REINFORCING STEEL IN SLABS SHALL BE STANDARD 90 DEGREE STIRRUP HOOKS; A CONTINUOUS PERPENDICULAR TOP BAR (#4 MINIMUM) SHALL BE INSTALLED INSIDE THE CORNERS OF ALL HOOKED BARS.

7. VERTICAL REINFORCING STEEL IN CONCRETE AND MASONRY WALLS WITH ONE LAYER OF REINFORCING BARS SHALL BE INSTALLED IN THE CENTER OF THE WALL, U.N.O.

PREFABRICATED WOOD TRUSSES

1. WOOD TRUSSES SHALL BE FABRICATED BY AN AUTHORIZED TRUSS MANUFACTURER. ENGINEERING DRAWINGS CONFORMING WITH THE DESIGN LOAD AND DEFLECTION CRITERIA SHALL BE SUBMITTED FOR APPROVAL BEFORE FABRICATION. THEY SHALL BEAR THE SEAL OF A REGISTERED PROFESSIONAL ENGINEER.

2. DESIGN STANDARDS SHALL CONFORM WITH THE APPLICABLE PROVISION OF THE "NATIONAL DESIGN SPECIFICATION FOR WOOD CONSTRUCTION", PUBLISHED BY THE NATIONAL FOREST PRODUCTS ASSOCIATION, AND "THE DESIGN SPECIFICATIONS FOR THE METAL PLATE CONNECTED WOOD TRUSSES", PUBLISHED BY THE TRUSSES PLATE INSTITUTE.

3. ALL CONNECTOR PLATES SHALL BE A MINIMUM THICKNESS OF 0.036" AND SHALL BE MANUFACTURED FROM STEEL MEETING THE REQUIREMENTS OF ASTM A446 GRADE A, AND SHALL BE HOT DIP GALVANIZED ACCORDING TO ASTM A525.

4. LUMBER DEFECTS SUCH AS WANE AND KNOTS OCCURRING ON THE CONNECTOR PLATE AREA MUST NOT AFFECT MORE THAN TEN PERCENT OF REQUIRED PLATE AREA OR NUMBER OF EFFECTIVE TEETH REQUIRED FOR EACH TRUSS MEMBER. CONNECTOR PLATES SHALL BE APPLIED TO BOTH FACES OF TRUSS AT EACH JOINT, AND SHALL PROVIDE FIRM EVEN CONTACT BETWEEN THE PLATE AND THE WOOD. ALL WOOD MEMBERS SHALL BE ACCURATELY CUT AND FABRICATED SO THAT ALL MEMBERS HAVE GOOD BEARING AND ALL COMPLETED TRUSS UNITS ARE UNIFORM. REFER TO TRUSS PLATE INSTITUTE QUALITY CONTROL MANUAL QCM 71 FOR TOLERANCES AND OTHER SPECIAL REQUIREMENTS.

5. ALL TRUSSES MUST BE SECURELY BRACED BOTH DURING ERECTION AND AFTER PERMANENT INSTALLATION IN A BUILDING IN ACCORDANCE WITH "BCSI GUIDE TO GOOD PRACTICE FOR HANDLING, INSTALLING, AND BRACING OF METAL CONNECTED WOOD TRUSSES". ERECTION BRACING SHALL HOLD TRUSSES STRAIGHT AND PLUMB AND IN SAFE CONDITION UNTIL DECKING AND PERMANENT BRACING HAS BEEN FASTENED FORMING A STRUCTURALLY SOUND ROOF FRAMING SYSTEM. ALL ERECTION AND PERMANENT BRACING SHALL BE INSTALLED AND ALL TRUSSES PERMANENTLY FASTENED BEFORE APPLICATION OF ANY LOADS. PERMANENT STRUCTURAL CROSS BRACING TO ENSURE OVERALL RIGIDITY OF THE ROOF SYSTEM SHALL BE IN ACCORDANCE WITH ARCHITECTURAL/ENGINEERING PLANS FOR THE BUILDING STRUCTURE.

6. WHERE CONVENTIONAL FRAMING AND/OR TRUSSES FRAME INTO ONE ANOTHER, PROVIDE STEEL HANGERS, CLIPS, ETC. TO PROVIDE FULL LATERAL AND VERTICAL SUPPORT. REFERENCE BEAM HANGER SCHEDULE IN TYPICAL DETAIL.

7. TRUSS MANUFACTURER SHALL DESIGN ROOF TRUSSES TO SUPPORT ADDITIONAL SNOW LOADS AS REQUIRED DUE TO UNBALANCED LOADING AND DRIFTING SNOW IN ACCORDANCE WITH ASCE 7.

8. TRUSS CAMBER MUST NOT EXCEED THE DEAD LOAD DEFLECTION OF THE TRUSS.

9. MECHANICAL DUCT CHASES THROUGH TRUSSES SHALL BE COORDINATED WITH MEP DRAWINGS. REFERENCE DUCT OPENING ELEVATION AND SCHEDULES FOR SIZE REQUIREMENTS

10. TRUSSES TO BE INSTALLED WITH A MIN 2x6 RIBBON BOARD (CONT.) U.N.O.

11. TRUSSES TO BE ATTACHED TO WOOD TOP PLATES PER TYPICAL WOOD FASTENING SCHEDULE U.N.O.

12. ALL TRUSSES TO HAVE A MINIMUM BEARING LENGTH OF 2-1/4".

13. ALL FIELD MODIFICATIONS TO TRUSSES MUST BE REVIEWED BY THE TRUSS MANUFACTURER AND DESIGNER PRIOR TO MODIFICATIONS

14. TRUSS MANUFACTURER IS RESPONSIBLE FOR THE CONNECTION OF PIGGY BACK TRUSSES.

15. ALL UPLIFT CONNECTIONS ARE DESIGNED BASED ON DOUG-FIR WOOD TRUSSES.

16. THE BOTTOM CHORD OF ALL TRUSSES TO BE BRACED BY EITHER A GYPSUM CEILING, OR 2x6 BRACING AT 10' O.C.

17. PROVIDE FULL DEPTH BLOCKING BENEATH WOOD POST ABOVE.

18. TOP CHORD OF TRUSSES TO BE DESIGNED FOR DEAD AND LIVE LOAD INDICATED IN THE DESIGN LOAD SCHEDULE. THE BOTTOM CHORD OF ROOF TRUSSES SHALL BE DESIGNED FOR AN ADDITIONAL DEAD LOAD OF 7 PSF AND LIVE LOAD OF 10 PSF. ROOF TRUSSES WITH A MINIMUM CLEARANCE BETWEEN CHORDS OF 42" AND A BOTTOM CHORD SLOPE LESS THAN 3:12 SHALL BE DESIGNED FOR AN INCREASED BOTTOM CHORD LIVE LOAD OF 20PSF.

19. ALL FLOOR TRUSSES TO BE DESIGNED FOR PARTITION LOADING UNLESS THE FOLLOWING CRITERIA IS MET:
   A. TRUSS SPACING IS LESS THAN OR EQUAL TO 24" O.C.
   B. ALL TOP CHORD PANEL LENGTHS OF SUPPORTING TRUSSES ARE LESS THAN OR EQUAL TO 30" WHEN THE LUMBER IS ORIENTED IN THE FLAT DIRECTION
   C. DESIGN LIVE LOAD OF SUPPORTING TRUSSES RESULTS FROM A RESIDENTIAL OCCUPANCY IS AND IS NOT LESS THAN 40 PSF
   D. PARTITION WALL WEIGHT IS LESS THAN 60 LBS/FT. (SEE TABLE BELOW)
      a. ALTERNATIVELY, WEIGHT OF PARTITION LOADS CAN BE OMITTED IF THE TRUSSES ARE DESIGNED FOR THE WEIGHT OF EACH INDIVIDUAL WALL.

PARTITION WALL HEIGHT

SHEATHING	2x4 HEIGHT	2x6 HEIGHT
(1) 1/2" GYPSUM LAYER (EACH SIDE)	11'-4"	10'-2"
(1) 5/8" GYPSUM LAYER (EACH SIDE)	9'-6"	9'-0"

20. ALL TRUSSES SHALL MEET THE FOLLOWING DEFLECTION CRITERIA.
   D. TOTAL DEFLECTION = L/240
   E. LIVE LOAD DEFLECTION (ROOF) = L/360
   F. LIVE LOAD DEFLECTION (STANDARD - CARPET/ HARDWOOD/ LVT) = L/480
   G. LIVE LOAD DEFLECTION (BRITTLE FINISHES - TILE/ STONE) = L/600

21. THE DIFFERENTIAL DEFLECTION OF ADJACENT FLOOR TRUSSES MUST NOT EXCEED VALUE LISTED IN TABLE BELOW

MAX. DIFFERENTIAL DEFLECTION

DEFLECTION LIMIT	TRUSS SPACING			
	12" O.C.	16" O.C.	19.2" O.C.	24" O.C.
L/240	0.1"	0.13"	0.16"	0.2"
L/360	0.07"	0.09"	0.11"	0.13"
L/480	0.05"	0.07"	0.08"	0.1"
L/600	0.04"	0.05"	0.06"	0.08"

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1	12/13/23	PERMIT

CLIENT:

PROJECT NAME / LOCATION:

Okeechobee (Mikvah)

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DRAWING TITLE:

STRUCTURAL SPECIFICATIONS

EXAMINER'S SIGNATURE:

PROFESSIONAL SEAL:

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THE GENERAL CONTRACTOR SHALL CHECK AND VERIFY ALL DIMENSIONS AND REPORT ALL ERRORS AND OMISSIONS TO THE ARCHITECTS. DO NOT SCALE DRAWING. THE DRAWING SHALL NOT BE USED UNTIL SIGNED BY CONSULTANTS.