STRUCTURAL STEEL

MATERIAL:

- ALL STRUCTURAL STEEL ROLLED SHAPES SHALL CONFORM TO THE FOLLOWING ASTM DESIGNATIONS AND GRADES:
- ASTM A992, GRADE 50 (FY=50 KSI): W- AND WT-SHAPES.
- ASTM A992, GRADE 50 (FY=50 KSI): W-SHAPE BEAMS.
- ASTM A992, GRADE 50 (FY=50 KSI): W-SHAPE COLUMNS.
- ASTM A992, GRADE 50 (FY=50 KSI): W-SHAPE TRUSSES.
- ASTM A36, GRADE 36 (FY=36 KSI): M AND S-SHAPES.
- ASTM A36, GRADE 36 (FY=36 KSI): C AND MC-SHAPES.
- ASTM A36, GRADE 36 (FY=36 KSI): C AND MC-SHAPE BEAMS.
- ASTM A36, GRADE 36 (FY=36 KSI): C-SHAPE GIRTS.
- ASTM A36, GRADE 36 (FY=36 KSI): L-SHAPES.
- ASTM A572, GRADE 50 (FY=50 KSI): L-SHAPES IN TRUSSES.
- ASTM A500, GRADE B (FY=42 KSI): ROUND HSS.
- ASTM A500, GRADE B (FY=46 KSI): RECTANGULAR HSS.
- ASTM A53 (TYPES E OR S), GRADE B. (FY=35 KSI): STEEL PIPES.
- ASTM A572, GRADE 50 (FY=50 KSI): BASE PLATES, MISCELLANEOUS STEEL PLATES, PLATES UP TO AND INCLUDING 4" THICK.
- ASTM A572, GRADE 42 (FY=42 KSI): PLATES OVER 4" THICK TO 6" THICK INCLUSIVE.
- ASTM A588, GRADE 42 (FY=42 KSI): PLATES OVER 6" THICK TO 8" THICK INCLUSIVE.
- ASTM A36, GRADE 36 (FY=36 KSI): PLATES OVER 8".
- ASTM A36, GRADE 36 (FY=36 KSI): EDGE ANGLES, BENT PLATES, ANGLE HANGERS, AND ANGLE KICKERS.
- ASTM A325 OR A490, HIGH STRENGTH BOLTS (SLIP CRITICAL JOINTS, IF SPECIFIED). DIAMETER RANGE OF 0.5 TO 1.5".
- ASTM A307, GRADE 42, CARBON STEEL BOLTS (60 KSI TENSILE STRENGTH). ALL OTHER ANCHOR BOLTS UNLESS NOTED OTHERWISE.
- ASTM A449 OR F1554, ANCHOR RODS HOOKED, HEADED, THREADED & NUTTED. (A449 -90,105 AND 120 KSI TENSILE STRENGTH OR F1554- GRADE 36, 55 AND 105 KSI). DIAMETER RANGE OF 0.25 TO 3".
- ASTM A36, GRADE 36 (FY=36 KSI): THREADED RODS.
- ASTM A563, STEEL NUTS.
- ASTM F436, STEEL WASHERS.
- ASTM F959, DIRECT-TENSION-INDICATOR STEEL WASHERS.
- ASTM A108, SHEAR STUD CONNECTOR (65 KSI TENSILE STRENGTH).
- ASTM A 588 (CORROSION RESISTANT). SEE DRAWINGS FOR LOCATIONS.
- OTHER STEEL: ANY OTHER STEEL NOT INDICATED OTHERWISE SHALL CONFORM TO ASTM A 992 OR ASTM A 572, GRADE 50, EXCEPT PLATES AND ANGLES THAT SHALL BE ASTM A 36.
- WELDING SHALL CONFORM TO THE AMERICAN WELDING SOCIETY STANDARD 01. LATEST EDITION. ELECTRODES FOR SHOP AND FIELD WELDS SHALL CONFORM TO ASTM A233, CLASS E70XX.
- GROUT BELOW STRUCTURAL STEEL BASE PLATES SHALL BE NON-METALLIC, NON-SHRINK GROUT WITH A MINIMUM STRENGTH OF 5,000 PSI WHEN BEARING ON 3,000 PSI CONCRETE OR LESS, A STRENGTH OF 6,000 PSI WHEN BEARING ON CONCRETE BETWEEN 3,000 AND 4,000 PSI, AND, UNLESS NOTED OTHERWISE ON THE DRAWINGS, A STRENGTH OF 8,000 PSI WHEN BEARING ON CONCRETE GREATER THAN 4,000 PSI.
- ALL CONNECTION MATERIAL, EXCEPT AS NOTED OTHERWISE HEREIN OR ON THE DRAWINGS, INCLUDING BEARING PLATES, GUSSET PLATES, STIFFENER PLATES, FILLER PLATES, ANGLES, ETC. SHALL CONFORM TO ASTM A 36 UNLESS A HIGHER GRADE OF STEEL IS REQUIRED BY STRENGTH AND PROVIDED THE RESULTING SIZES ARE COMPATIBLE WITH THE CONNECTED MEMBERS.
- HOT ROLLED STRUCTURAL MEMBERS: ALL HOT ROLLED STEEL PLATES, SHAPES, SHEET PILING, AND BARS SHALL BE NEW STEEL CONFORMING TO ASTM SPECIFICATION A 6.
- ASTM SPECIFICATION AND GRADE: CLEARLY MARK THE GRADE OF STEEL ON EACH PIECE, WITH A DISTINGUISHING MARK VISIBLE FROM FLOOR SURFACES, FOR THE PURPOSE OF FIELD INSPECTION OF PROPER GRADE OF STEEL.
- CONNECTION DETAILS NOT COMPLETELY DETAILED ON THE DRAWINGS INCLUDING MATERIAL GRADE AND SIZES, WELD SIZES, AND NUMBER OF BOLTS SHALL BE DESIGNED BY THE CONTRACTOR PER THE SPECIFICATIONS. CONCEPTUAL CONNECTION DETAILS WITH THE REQUIRED MEMBER DESIGN FORCES ARE SHOWN ON THE DRAWINGS AND ARE APPLICABLE TO ALL CONNECTIONS NOT DESIGNED AND FULLY DETAILED ON THE DRAWINGS. THE CONCEPTUAL DETAILS ARE PROVIDED ONLY TO INDICATE THE CONNECTION TYPE REQUIRED AND MAY NOT FULLY REPRESENT THE COMPLEXITY OF THE CONNECTION AS REQUIRED BY THE FINAL CONNECTION DESIGN FOR THE FORCES THEY MUST RESIST. ADDITIONAL CONNECTION ELEMENTS MAY NOT BE SPECIFICALLY SHOWN IN THE CONCEPTUAL DETAILS, BUT MAY BE REQUIRED BY THE FINAL CONNECTION DESIGN, SUCH AS STIFFENER PLATES, DOUBLE PLATES, SUPPLEMENT/REINFORCING PLATES OR OTHER CONNECTION MATERIAL. THE FABRICATOR IS RESPONSIBLE FOR ENGAGING THE SERVICES OF A CONNECTION SPECIALTY ENGINEER TO PREPARE A FINAL CONNECTION DESIGN FOR SUBMISSION THAT MEETS THE REQUIREMENTS OF THE CONCEPTUAL CONNECTION DETAILS AND RESISTS THE INDICATED DESIGN FORCES.
- STRUCTURAL STEEL CONNECTIONS NOT DETAILED ON THE CONTRACT DOCUMENTS SHALL BE DETAILED IN ACCORDANCE WITH THE A.I.S.C. "MANUAL OF STEEL CONSTRUCTION". BEAM REACTIONS ARE GIVEN ON THE CONTRACT DOCUMENTS AND FABRICATOR IS RESPONSIBLE FOR ENGAGING THE SERVICES OF A CONNECTION SPECIALTY ENGINEER TO PREPARE A FINAL CONNECTION DESIGN.
- REACTIONS NOTED ON THE PLANS ARE BASED ON UNFACTORED LOADS.
- PRIOR TO DETAILING CONNECTIONS FOR STRUCTURAL STEEL, THE STEEL FABRICATOR SHALL SUBMIT FOR APPROVAL REPRESENTATIVE DETAILS AND CALCULATIONS FOR EACH TYPE OF STRUCTURAL STEEL CONNECTION TO BE UTILIZED. AFTER APPROVAL THE CONNECTIONS MAY BE INCORPORATED INTO THE SHOP DRAWINGS ALONG WITH A TABLE OF DESIGN CAPACITIES FOR THE RANGE OF CONNECTIONS TO BE USED.
- ANY STEEL CONNECTION ENGINEERING, PROVIDED BY OTHERS AND SUBMITTED FOR REVIEW, SHALL BEAR THE SEAL OF AN PROFESSIONAL ENGINEER REGISTERED IN THE STATE WHERE THE PROJECT IS BUILD.
- ANY AND ALL MIS FABRICATION OF STRUCTURAL STEEL SHALL BE CALLED TO THE ATTENTION OF THE ENGINEER BEFORE ERECTION OF SAME.
- SHOP DRAWINGS SHALL BE SUBMITTED FOR REVIEW IN COMPLIANCE WITH DOCUMENTS SHOWING COMPLETE DETAILS OF THE STRUCTURAL STEEL WORK BASED UPON THE CONTRACT DRAWINGS AND DETAILS. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE CORRECTNESS OF THE SHOP DRAWINGS AND FOR SHOP AND FIELD FABRICATION. THE REVIEW OF CORRECTION OF ANY DRAWINGS SHALL NOT ACT AS A RELIEF FROM RESPONSIBILITY FOR THE CORRECTNESS OF THE STRENGTH OF THE DETAILS. REVIEW COVERS GENERAL DESIGN INTENT ONLY.
- DEFERRED SUBMITTAL SHALL BE SUPPLIED FOR MISCELLANEOUS STEEL FRAMINGS.
- ALL CONSTRUCTION PER LATEST AISC HANDBOOK.

STRUCTURAL STEEL CONT:

- ALL STRUCTURAL STEEL SHALL BE DETAILED, FABRICATED, CORROSION PROTECTED AND ERECTED IN ACCORDANCE WITH THE AISC CODE OF STANDARD PRACTICE, (LATEST EDITION) EXCEPT AS MODIFIED IN THESE NOTES. PROVIDE IN SHOP ONE (1) COAT OF RUST INHIBITING PAINT FOR ALL EXPOSED STRUCTURAL STEEL.
- THE STEEL FABRICATOR SHALL BE CERTIFIED BY THE AISC QUALITY CERTIFICATION PROGRAM.
- CONNECTION BOLTS SHALL HAVE A HARDENED WASHER PLACED UNDER THE ELEMENT TO BE TIGHTENED. BOLTS SHALL BE TIGHTENED ACCORDING TO THE "TURN-OF-NUT" TIGHTENING METHOD. LOAD INDICATING BOLTS AND HARDENED WASHERS MAY BE USED IN LIEU OF THE STANDARD BOLT ASSEMBLY. LOAD INDICATING BOLTS SHALL BE INSTALLED IN ACCORDANCE WITH THE RECOMMENDATIONS OF THE MANUFACTURER.
- ALL REFERENCE TO HEADED STUDS SHALL BE HIGH STRENGTH HEADED STUDS. ATTACHMENT OF HEADED STUDS SHALL CONFORM TO ALL REQUIREMENTS OF THE LATEST EDITION OF THE "RECOMMENDED PRACTICES FOR STUD WELDING" AND THE "STRUCTURAL WELDING CODE" PUBLISHED BY AWS.
- ALL BOLTS, ANCHOR BOLTS, EXPANSION BOLTS, ETC. SHALL BE INSTALLED WITH STEEL WASHERS AT FACE OF WOOD OR AT SLOTTED HOLES IN STEEL SECTIONS. ALL HIGH STRENGTH BOLTING SHALL BE INSPECTED BY AN INDEPENDENT TESTING LABORATORY. ALL WELDING SHALL BE PERFORMED BY WELDERS HOLDING VALID CERTIFICATES AND HAVING CURRENT EXPERIENCE IN THE TYPE OF WELD SHOWN ON THE DRAWINGS OR NOTES. CERTIFICATES SHALL BE THOSE ISSUED BY AN ACCEPTED TESTING AGENCY THESE DRAWINGS DO NOT DISTINGUISH BETWEEN SHOP AND FIELD WELDS; THE CONTRACTOR MAY SHOP WELD OR FIELD WELD AT HIS DISCRETION. SHOP WELDS AND FIELD WELDS SHALL BE SHOWN ON THE SHOP DRAWINGS SUBMITTED FOR REVIEW. ALL FULL (COMPLETE) PENETRATION WELDS SHALL BE TESTED AND CERTIFIED BY AN INDEPENDENT TESTING LABORATORY. WHEN STRUCTURAL STEEL IS FURNISHED TO A SPECIFIED MINIMUM YIELD POINT GREATER THAN 36 KSI, THE ASTM OR OTHER SPECIFICATION DESIGNATION SHALL BE INCLUDED NEAR THE ERECTION MARK ON EACH SHIPPING ASSEMBLY OR IMPORTANT CONSTRUCTION COMPONENT, OVER ANY SHOP COAT OF PAINT, PRIOR TO SHIPMENT FROM THE FABRICATOR'S PLANT.
- SPLICING OF STRUCTURAL STEEL MEMBERS WHERE NOT DETAILED ON THE CONTRACT DOCUMENTS IS PROHIBITED WITHOUT THE PRIOR APPROVAL OF THE STRUCTURAL ENGINEER AS TO LOCATION, TYPE OF SPLICE AND CONNECTION TO BE MADE.
- ALL HIGH STRENGTH BOLTS SHALL BE ASTM A325 AND SHALL BE INSTALLED AS BEARING-TYPE CONNECTIONS WITH THREADS INCLUDED IN SHEAR PLANE (I.E. A TYPE "N" CONNECTION). BOLTS MAY BE TIGHTENED USING ANY AISC APPROVED METHOD. USE SC (SLIP CRITICAL) AT ALL MOMENT FRAMES AND BRACED FRAMES. ALL HIGH STRENGTH BOLTING SHALL BE INSPECTED BY AN INDEPENDENT TESTING LABORATORY TO ENSURE BOLT TENSION.
- ALL REFERENCE TO HEADED STUDS SHALL BE AUTOMATIC WELDED HIGH STRENGTH HEADED STUDS. ATTACHMENT SHALL CONFORM TO ALL REQUIREMENTS OF THE LATEST EDITION OF THE "RECOMMENDED PRACTICES FOR STUD WELDING" AND THE "STRUCTURAL WELDING CODE" PUBLISHED BY THE AMERICAN WELDING SOCIETY. CONFORMANCE SHALL INCLUDE, BUT NOT BE LIMITED TO, ALL QUALITY CONTROL TESTING PROVISIONS OF THE AFOREMENTIONED PUBLICATIONS. SPACING OF HEADED SHEAR CONNECTOR STUDS ON COMPOSITE STEEL BEAMS:
- HEADED STUDS SHALL BE UNIFORMLY SPACED. USE NOT MORE THAN ONE STUD PER RIB WHERE THE NUMBER OF STUDS REQUIRED IS LESS THAN OR EQUAL TO THE NUMBER OF RIBS AVAILABLE. WHERE THE NUMBER OF STUDS REQUIRED EXCEEDS THE NUMBER OF RIBS AVAILABLE, PLACE A MINIMUM OF ONE STUD PER RIB FULL LENGTH OF THE BEAM. PLACE ADDED STUDS (NO MORE THAN TWO PER RIB TOTAL) IN EACH RIB BEGINNING AT THE SUPPORTS AT EACH END AND MOVING TOWARDS MID-SPAN UNTIL REQUIRED NUMBER OF STUDS IS SUPPLIED. MINIMUM LONGITUDINAL STUD SPACING IS 6 STUD DIAMETERS CENTER TO CENTER. MAXIMUM LONGITUDINAL STUD SPACING IS 18" CENTER TO CENTER. MINIMUM TRANSVERSE STUD SPACING IS 4 STUD DIAMETERS CENTER TO CENTER. MINIMUM TRANSVERSE DISTANCE BETWEEN EDGE OF BEAM AND CENTERLINE OF STUD IS 1". STUDS SHALL PROJECT A MINIMUM OF 1 1/2" ABOVE THE TOP OF THE STEEL DECK AND SHALL BE HELD A MINIMUM 3/4" CLEAR OF THE TOP OF THE CONCRETE SLAB. CONTRACTOR SHALL SUBMIT SHOP DRAWINGS FOR REVIEW PRIOR TO FABRICATION.
- ALL STAIRS, GUARDRAILS, AND HANDRAILS, AND THEIR ANCHORAGE AND CONNECTIONS, SHALL BE DESIGNED BY A REGISTERED STRUCTURAL ENGINEER LICENSED IN THE STATE WHERE THE PROJECT IS LOCATED.
- STAIR STRINGERS, TREADS, AND RISERS SHALL BE DESIGNED TO SUPPORT THE LIVE LOAD NOTED IN DRAWINGS.
- INDIVIDUAL STAIR TREADS SHALL BE DESIGNED TO SUPPORT A MINIMUM 300 POUND CONCENTRATED LOAD PLACED IN A POSITION THAT WOULD CAUSE MAXIMUM STRESS.
- THE TOP RAILS OF HANDRAILS AND GUARDRAILS SHALL BE DESIGNED TO WITHSTAND A LOAD OF 50 PLF OR A 200 POUND CONCENTRATED LOAD APPLIED IN ANY DIRECTION AT ANY POINT AND HAVE ATTACHMENT ANCHORAGE SUFFICIENT TO TRANSFER THIS LOADING TO APPROPRIATE STRUCTURAL ELEMENTS OF THE BUILDING. THESE LOADS NEED NOT BE ASSUMED TO ACT CONCURRENTLY.
- ALL STAIRS ARE TO BE STEEL STAIRS PER THE ARCHITECTURAL DRAWINGS EXCEPT WHERE CONCRETE STAIRS ARE SPECIFICALLY SHOWN ON THE DRAWINGS.
- DRAWINGS AND BIDS ARE TO INCLUDE CONNECTIONS TO THE STRUCTURE
- ENGINEER WILL APPROVE THE DRAWINGS AS TO THEIR COMPLIANCE WITH THE INTENT OF THE STRUCTURAL DRAWINGS AND SPECIFICATIONS.
- STAIR SUPPORTS MAY BE HUNG FROM FLOOR FRAMING OR SELF-SUPPORTED.

METAL DECK, COMPOSITE BEAMS, AND STEEL JOIST

- COMPOSITE GALVANIZED FLOOR DECK SHALL BE 2" DEEP WITH MINIMUM RATIO OF WIDTH TO DEPTH (W/H) OF 2.0 OR GREATER. THE METAL DECK SHOULD BE ADEQUATE TO SUPPORT THE DEAD LOAD OF NORMALWEIGHT CONCRETE (145 LBS./CU.FT.) SLAB AND 20 LBS./SQ.FT. OF CONSTRUCTION LIVE LOAD WITHOUT SHORING THE DECK. THE DEFLECTION OF THE DECK FOR CONCRETE WEIGHT SHOULD NOT BE GREATER THAN 1/240TH OF THE SPAN OR 1/2" WHICHEVER IS SMALLER. FOR DIFFERENT THICKNESSES OF SLABS SEE FLOOR FRAMING PLANS. UNLESS REINFORCED WITH MILD STEEL REINFORCEMENT (#3, #4 OR #5 BARS), THE DECK ACTING COMPOSITE WITH THE SLAB SHOULD BE CAPABLE OF SUPPORTING BOTH THE FINAL DESIGN LIVE AND SUPERIMPOSED DEAD LOAD AS GIVEN IN THE "GENERAL NOTES." NO METAL DECK USED IN THE BUILDING SHOULD HAVE SECTION PROPERTIES PER FOOT WIDTH LESS THAN THE FOLLOWING:

METAL FLOOR DECK SCHEDULE

TYPE	GAUGE	PROFILE	DEPTH (in.)	MOMENT OF INERTIA (+)(IN4)	MOMENT OF INERTIA (-)(IN4)	SECTION MODULUS (+) (IN3)	SECTION MODULUS (+) (IN3)	YIELD STRENGTH (KSI)	NRC
3VLI	20	WIDE RIB	3.0	.920	.920	.534	.551	50	-

- FOR ROOF DECK OVER BAR JOIST AND STEEL BEAMS, GALVANIZED CORRUGATED METAL DECK WITH THE PROPERTIES GIVEN BELOW OR EQUIVALENT, SHALL BE USED FOR THE FOLLOWING AREAS:

- OPEN WEB STEEL JOISTS SHALL CONFORM TO THE STANDARDS OF THE STEEL JOIST INSTITUTE.
- ALL WELDED WIRE FABRIC SHALL CONFORM TO ASTM A185. THE FOLLOWING WWF SHOULD BE
- USED FOR AREAS SPECIFIED BELOW:

METAL ROOF DECK SCHEDULE

TYPE	GAUGE	PROFILE	DEPTH (in.)	MOMENT OF INERTIA (+)(IN4)	MOMENT OF INERTIA (-)(IN4)	SECTION MODULUS (+) (IN3)	SECTION MODULUS (+) (IN3)	YIELD STRENGTH (KSI)	NRC
1.5B	20	WIDE RIB	1.5	.201	.222	.234	.247	33	-

FLOOR SLAB – 6X6X W2.9XW2.9 WWF
FOR ADDITIONAL WWF, IF ANY, SEE FLOOR FRAMING PLAN.

- SHEAR CONNECTORS (INDICATED AS "[XX]" ON THE DRAWINGS) SHALL DEVELOP A DESIGN VALUE OF [17.0] KIPS PER CONNECTOR WITH A MINIMUM SAFETY FACTOR OF 1.67. SUBSTITUTION OF SHEAR CONNECTORS WITH DESIGN SHEAR CAPACITY OTHER THAN GIVEN ABOVE WILL BE ACCEPTABLE PROVIDED TOTAL HORIZONTAL SHEAR CAPACITY IN A SPAN OF A BEAM OR A GIRDER IS UNALTERED. THE ARRANGEMENT AND SPACING OF SHEAR CONNECTORS SHALL BE SUBJECT TO THE ENGINEER'S APPROVAL. THE UNSHORED COMPOSITE BEAMS RELY ON THE WELDED CONNECTIONS OF THE DECK TO THE TOP FLANGES FOR LATERAL BRACING PRIOR TO CURING OF SLAB CONCRETE. THICKNESS OF SLABS ON PERMANENT COMPOSITE METAL DECK SHALL NOT EXCEED THE TOTAL THICKNESS AS INDICATED ON THE FRAMING PLAN(S) BY 3/4 INCHES.
- SLABS SHALL BE REINFORCED WITH WELDED WIRE MESH, SUPPLIED IN FLAT SHEETS, AT 3/4" FROM TOP OF SLAB, TYPICAL UNLESS NOTED OTHERWISE. WIRE MESH SIZE SHALL BE AS INDICATED ON THE FRAMING PLAN(S). PROVIDE ADEQUATELY DESIGNED CHAIRS THAT MAINTAIN THE MESH POSITION FROM SLAB'S TOP SURFACE AS SPECIFIED. MINIMUM SPACING OF 2'-6" OC MAX OVER ALL BEAMS, LAP EDGES AND ENDS OF ADJOINING SHEETS. THE LENGTH OF LAP SHALL BE MEASURED BETWEEN THE OUTER MOST CROSS WIRES OF FABRIC SHEET AND SHALL NOT BE LESS THAN ONE SPACING OF THE CROSS WIRES PLUS 2 INCHES. OFFSET LAPS OF ADJOINING SHEET WIDTHS TO PREVENT CONTINUOUS LAPS IN EITHER DIRECTION. LACE OVERLAPS WITH WIRE.
- INSTALL DECK ENDS OVER SUPPORTING FRAME WITH A MINIMUM END BEARING LENGTH IN ACCORDANCE WITH THE TYPICAL FLOOR DECK BEARING DETAIL, WITH END JOINTS BUTTED; DO NOT OVERLAP.
- THE COMPOSITE STEEL DECK SHALL BE CONNECTED TO THE SUPPORTING STEEL BEAMS BY WELDING THE SHEAR-STUD CONNECTORS THROUGH THE DECK. WHERE SHEAR-STUD CONNECTORS ARE NOT SPECIFIED, THE METAL DECK SHALL BE ATTACHED TO THE SUPPORTING STEEL WITH 3/4" PUDDLE WELDS AT 12" OC MAX. WHERE THE SPECIFIED STUD SPACING EXCEEDS 12" OC, PROVIDE 3/4" PUDDLE WELDS BETWEEN SHEAR-STUD CONNECTORS TO MAINTAIN A MAXIMUM DECK CONNECTION SPACING OF 12" OC.
- FASTEN SIDE LAPS OF PANELS BETWEEN SUPPORTS, AT 24 INCHES ON CENTER MAX. WITH SELF-DRILLING NO. 10 DIAMETER OR LARGER CARBON-STEEL SCREWS, OR CLINCH OR BUTTON PUNCHING OR WITH A MINIMUM OF 1 1/2 INCH LONG WELDS.
- WELD GIRDER FILLERS TO STEEL BEAM WITH 2" LONG FUSION WELDS AT A MAXIMUM SPACING OF 12 INCHES. GIRDER FILLERS SHALL BE CONNECTED TO ADJACENT PIECES OF DECK PER ABOVE.
- COMPOSITE METAL DECK IS DESIGNED TO BE CONTINUOUS OVER THREE OR MORE SPANS. THE DECK SUPPLIER SHALL ADJUST THE THICKNESS OR GAUGE OF THE DECK AT LOCATIONS WHERE SINGLE OR DOUBLE SPAN CONDITIONS ARE PROVIDED. DECK SHALL BE DESIGNED TO PROVIDE EQUIVALENT OR GREATER LOAD CAPACITY AS THE SPECIFIED DECK SUPPORTED OVER THREE CONTINUOUS SPANS. THE THICKNESS OR GAGE OF THE DECK SHALL ALSO BE ADJUSTED BY THE DECK SUPPLIER WHERE REQUIRED DUE TO WEB CRIPPLING CONSIDERATIONS, BASED ON THE BEARING WIDTH AVAILABLE OVER THE BEAM FLANGES.
- PREPARE AND REPAIR DAMAGED GALVANIZED COATINGS ON BOTH SURFACES OF DECK WITH GALVANIZED REPAIR PAINT ACCORDING TO ASTM A780 AND MANUFACTURER'S WRITTEN INSTRUCTIONS.
- UNCAMBERED STEEL FLOOR FRAMING DEFLECTION NOTES:

- THE UNCAMBERED STEEL FRAMING HAS BEEN DESIGNED TO BE WITHIN CODE REQUIRED DEFLECTION LIMITS (UP TO SPAN DIVIDED BY 240 FOR DEAD LOADS). THE CONTRACTOR SHALL ACCOUNT FOR ANY ADDITIONAL CONCRETE THAT RESULTS DUE TO SUCH DEFLECTIONS IN THE FLOOR CONCRETE QUANTITIES.
- THE METAL DECK MAY DEFLECT UP TO 3/4". THE CONTRACTOR SHALL ACCOUNT FOR ANY ADDITIONAL CONCRETE THAT RESULTS DUE TO SUCH DEFLECTIONS IN THE FLOOR CONCRETE QUANTITIES.
- THE DETAILS IN THE CONTRACT DOCUMENTS CALL FOR BLOCKOUTS OF FLOOR OPENINGS, WITH THE DECK TO BE CUT AFTER THE SLAB IS POURED. IF HOLES IN THE DECK MUST BE CUT PRIOR TO THE SLAB BEING POURED, THE CONTRACTOR SHALL REINFORCE THE OPENINGS WITH C6x8.2 CHANNELS BETWEEN BEAMS TO SUPPORT THE METAL DECK.
- DO NOT APPLY CONSTRUCTION LOADS TO THE SLAB UNTIL THE CONCRETE HAS REACHED 75% OF SPECIFIED STRENGTH. NO CONDUITS ALLOWED IN SLABS WITHOUT PRIOR APPROVAL FROM ENGINEER.
- ALL STEEL JOINTS AND JOINT GIRDERS SHALL BE DESIGNED UNDER THE DIRECT SUPERVISION OF A STRUCTURAL ENGINEER ISTERED IN THE STATE WHERE THE PROJECT IS LOCATED.
- THE FRAMING PLANS AND DETAILS MAY SHOW THE JOISTS IN ADJACENT BAYS WITH BUTTED SEATS. IF THE SUPPORTING STEEL BEAM OR EMBEDDED PLATE IN THE WALL IS NOT WIDE ENOUGH TO ALLOW BUTTED SEATS AND MEET THE MINIMUM BEARING LENGTH REQUIRED BY SJI, THEN THE SEATS SHALL BE LAPPED. THE CONTRACTOR SHALL COORDINATE THE FINAL JOIST LOCATION WITH THE METAL DECK SPANS.
- ALL STEEL JOISTS AND JOIST GIRDERS SHALL BE DETAILED, FABRICATED AND ERECTED IN ACCORDANCE WITH AISC AND SJI SPECIFICATIONS FOR OPEN WEB STEEL JOISTS AND JOIST GIRDERS. PROVIDE POSITIVE CAMBER IN COMPLIANCE WITH THE RECOMMENDATIONS OF THE CURRENT EDITION OF THE STEEL JOIST INSTITUTE'S STANDARD SPECIFICATIONS.
- JOIST, JOIST GIRDERS, AND ACCESSORIES SHALL BE PAINTED WITH ONE SHOP COAT OF RUST INHIBITIVE PAINT.
- JOISTS AND JOIST GIRDERS SHALL RESIST THE NET UPLIFT PRESSURE ON ROOF SHOWN IN THE DESIGN LOADS.
- SPECIAL JOISTS AND JOIST GIRDERS THAT REQUIRE SPECIFIC ORIENTATION SHALL BE TAGGED AT ONE END. DEFINE LOCATION OF TAGGED END ON ERECTION DRAWINGS.
- THE JOIST SIZES SHOWN ON THE FRAMING PLANS DO NOT TAKE INTO ACCOUNT THE WEIGHT OF THE MECHANICAL OR OTHER EQUIPMENT. STEEL JOISTS DESIGNATED WITH THE TERM "ADD LOAD" SHALL BE DESIGNED BY THE MANUFACTURER TO SUPPORT THE CONCENTRATED LOADS INDICATED ON THE ROOF FRAMING PLAN, LOCATED ANYWHERE ALONG THE JOIST, IN ADDITION TO THE DEAD AND LIVE LOADS INDICATED ON THE DRAWINGS. WHERE RTU LOCATIONS AND WEIGHTS ARE SHOWN, THE CONTRACTOR SHALL COORDINATE THE FINAL RTU LOCATIONS, WEIGHTS, AND SIZES WITH THE JOIST MANUFACTURER AND NOTIFY THE ENGINEER OF ANY CHANGES FROM WHAT IS SHOWN ON THE FRAMING PLANS.
- HANGERS SUPPORTING MECHANICAL EQUIPMENT FROM JOIST CHORDS SHALL BE LOCATED WITHIN 3 INCHES OF JOIST PANEL POINTS OR JOIST SHALL BE REINFORCED PER JOIST REINFORCING DETAIL. HANGER LOADS GREATER THAN 150 POUNDS SHALL NOT BE ATTACHED TO THE EDGE OF CHORD ANGLES AND SHALL BE CENTERED ON JOIST CHORD.
- DIAGONAL BRIDGING SHALL BE PROVIDED BETWEEN ADJACENT JOISTS WHENEVER BOTTOM CHORD HORIZONTAL BRIDGING IS DISCONTINUOUS

SHEAR STUD CONNECTORS

A. PROVIDE SHEAR STUD CONNECTIONS IN ACCORDANCE WITH THE FOLLOWING:

DECK	TOTAL SLAB THICKNESS	STUD THICKNESS
3"	6.5"	3/4" DIA. X 5"

ALL SHEAR STUD CONNECTIONS SHALL BE APPLIED IN THE FIELD AND PLACED IN THE DECK FLUTES IN CONTACT WITH THE TOP FLANGE OF THE BEAM. ESTABLISH APPROPRIATE CONNECTOR PLACEMENT PRIOR TO INSTALLATION OF SHEAR STUD CONNECTORS.
MAXIMUM SPACING OF SHEAR STUD CONNECTORS SHALL BE 36" ON CENTER. PROVIDE ADDITIONAL SHEAR/ HEADED STUD CONNECTORS AS REQUIRED TO COMPLY WITH THE MAXIMUM SPACING AT ALL BEAMS SUPPORTING COMPOSITE DECK WHERE SHEAR STUD CONNECTORS SPECIFIED IS LESS THAN REQUIRED TO MEET THE MAXIMUM SPACING.

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DLD ENGINEERING
18106 FIRST BEND DR.
CYPRESS, TX. 77433
O:832.422.9350

ARCHITECT
W SQUARED ARCHITECTS
O 281 410 1349
www.wsquaredarch.com

DESIGN ARCHITECT
W SQUARE ARCHITECTS
3302 CANAL STREET, SUITE 36
HOSUTON, TX 77003
PHONE: (281) 410-1349

GREATER HEIGHTS SCHOOL
HOUSTON, TEXAS

STATE OF TEXAS
SLAVEN SEFEROVIC
106824
LICENSED PROFESSIONAL ENGINEER

07/22/2019

TEXAS REGISTERED ENGINEERING FIRM F-17306

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DRAWING SCALE: AS NOTED

REVISION

NO.	DESCRIPTION	DATE

DATE
07.22.2019

ISSUE
PERMIT SET

BUILDING TITLE
GH SCHOOL
4724 N MAIN STREET

SHEET TITLE
STEEL - GENERAL STRUCTURAL NOTES

SHEET NO.
S0.30