











DESIGN SEISMIC SPECTRAL RESPONSE COEFFICIENTS:

SEISMIC RESPONSE COEFFICIENT, Cs = 0.040

BASIC SEISMIC-FORCE-RESISTING SYSTEM: BUILDING FRAME SYSTEM -ORDINARY REINFORCED CONCRETE SHEAR WALLS IN COMBINATION WITH STEEL SYSTEM NOT SPECIFICALLY DETAILED FOR SEISMIC

RESPONSE MODIFICATION FACTOR, R = 5 (STEEL FRAMES, R = 3) DEFLECTION AMPLIFICATION FACTOR, Cd = 4.5 (STEEL FRAMES, Cd = 3)

ANALYSIS PROCEDURE: EQUIVALENT LATERAL FORCE PROCEDURE

Sds = 0.434

Sd1 = 0.164

RESISTANCE

SEISMIC DESIGN CATEGORY = C

DESIGN BASE SHEAR = 1900K

CODE/DESIGN CRITERIA (CONTINUED)

FLOOR MEMBERS:

5. MAXIMUM ESTIMATED DEFLECTIONS (IN INCHES) ARE AS FOLLOWS:

LIVE LOAD DEAD + LIVE LOAD ROOF MEMBERS: L/360 L/240

**L/**360

WHERE. L = SPAN LENGTH (IN INCHES) BETWEEN CENTERLINES OF SUPPORTS. (FOR CANTILEVERS, L IS TWICE THE LENGTH OF THE CANTILEVER.)

6. NO PROVISIONS HAVE BEEN MADE FOR FUTURE HORIZONTAL EXPANSION. FUTURE VERTICAL EXPANSION IS LIMITED TO LEVEL 5 PAVILIONS/PERGOLAS IN SPECIFIC AREAS NOTED ON PLAN. FOUNDATIONS

**L/**240

- FOUNDATION DESIGN IS BASED ON THE RECOMMENDATIONS IN THE GEOTECHNICAL REPORT PREPARED BY S&ME, INC., REPORT NUMBER 1611-10-426rev1 DATED OCTOBER 17, 2011 (REFERRED TO HEREIN AS GEOTECHNICAL REPORT). STEVENS 8 WILKINSON IS NOT RESPONSIBLE FOR SUBSURFACE CONDITIONS ENCOUNTERED IN THE FIELD DIFFERENT FROM THOSE ASSUMED FOR DESIGN.
- THE OWNER'S STRUCTURAL TESTING/INSPECTION AGENCY SHALL VERIFY THAT THE BEARING MEDIUM MEETS THE RECOMMENDATIONS OUTLINED IN THE GEOTECHNICAL REPORT PRIOR TO PLACING REINFORCING OR CONCRETE OR ANY REQUIRED STRUCTURAL FILL.
- ALL EXCAVATION AND BACKFILLING PROCEDURES AND MATERIALS SHALL CONFORM TO RECOMMENDATIONS OUTLINED BY THE GEOTECHNICAL REPORT. THE OWNER'S TESTING AGENCY SHALL INSPECT AND VERIFY ALL PROCEDURES AND MATERIALS ARE CONSISTENT
- TEMPORARY DEWATERING SHALL BE PROVIDED AS REQUIRED FOR CONSTRUCTION OF THE FOUNDATIONS AND SLABS ON GRADE.
- MAT FOOTINGS UNDER SHEAR WALLS AND INDIVIDUAL SPREAD FOOTINGS WITHIN THE BAS**EMENT** AREAS SHALL BEAR ON SOIL CAPABLE OF SUPPORING 5000 PSF. INDIVIDUAL FOOTINGS OUTSIDE OF THE BASEMENT AREAS SHALL BEAR ON SOIL CAPABLE OF

RETAINING WALL AND OTHER CONTINUOUS FOOTINGS SURROUNDING THE BASEMENT AND AUDITORIUM AREAS SHALL BEAR ON SOIL CAPABLE OF SUPPORTING 5000 PSF. ALL OTHER RETAINING WALL AND CONTINUOUS FOOTINGS SHALL BEAR ON SOIL CAPABLE OF SUPPOR**TIN**G 3000 PS**F**.

- 5.1 NO FOOTINGS SHALL BEAR ON ROCK. UNDERCUT ROCK A MINIMUM OF 2 FEET BELOW BOTTOM OF FOOTING AND REPLACE WITH STRUCTURAL FILL.
- FOUNDATION WALLS ARE DESIGNED FOR LATERAL PRESSURES DUE TO THE FOLLOWING **EQUIVALENT FLUID DENSITIES:**
- WALLS SUPPORTED AT TOP (AT-REST CONDITION): 60 PCF WALLS FREE TO DISPLACE AT TOP ( ACTIVE CONDITION): 40 PCF
- 7. FOR ALL CONCRETE WALLS, KEEP BACKFILL AND COMPACTION ELEVATIONS WITHIN A 2 FT MAX. DIFFERENTIAL UNTIL FINAL GRADES ARE ACHIEVED ON EACH SIDE OF WALL.
- PROVIDE FOUNDATION DRAINS AS SHOWN ON STRUCTURAL, CIVIL, AND/OR
- PROVIDE WATERPROOFING AND DRAINAGE MAT WITH FILTER FABRIC ON ALL RETAINING WALLS AS SHOWN ON STRUCTURAL, CIVIL, AND/OR ARCHITECTURAL DRAWINGS.
- 10. DO NOT UNDERMINE EXISTING FOUNDATIONS. REINFORCEMENT

ARCHITECTURAL DRAWINGS.

## 1. REINFORCING BARS SHALL CONFORM TO THE FOLLOWING:

- 1.1 DEFORMED BARS CONFORMING TO ASTM A615, GRADE 60, UNLESS NOTED
- 1.2 COLD-ROLLED. DEFORMED BAR ANCHORS CONFORMING TO ASTM A496 WITH TENSILE STRENGTH OF 80,000 PSI AND YIELD STRENGTH OF 70,000 PSI.
- 2. WELDED WIRE FABRIC SHALL CONFORM TO ASTM A185 PLAIN WIRE OR A497
- CONCRETE REINFORCEMENT SHALL BE DETAILED, FABRICATED, LABELLED SUPPORTED, AND SPACED IN FORMS, AND SECURED IN PLACE IN ACCORDANCE WITH THE PROCEDURES AND REQUIREMENTS OUTLINED IN THE LATEST EDITION OF THE "BUILDING CODE REQUIREMENTS FOR REINFORCED CONCRETE", ACI 318 AND THE 'ACI DETAILING MANUAL - LATEST EDITION", ACI SP-66. CHECKED SHOP DRAWINGS SHOWING REINFORCING DETAILS, INCLUDING CONCRETE REINFORCING SIZES, SPACING, AND LOCATION SHALL BE SUBMITTED FOR APPROVAL. ALL REINFORCING SHOWN ON THE PLACEMENT DRAWINGS (PLANS, DETAILS, AND ELEVATIONS) SHALL HAVE A UNIQUE MARK AND SHALL BE LISTED SEPARATELY SHOWING LENGTHS, QUANTITIES, AND BAR BENDING DETAILS.
- CONTRACTOR SHALL NOT PLACE ANY REINFORCING UNTIL SHOP DRAWINGS APPROVED, BY THE STRUCTURAL ENGINEER ARE RECEIVED AT THE JOB SITE.
- REINFORCEMENT SHALL BE SPLICED ONLY AT LOCATIONS SHOWN OR NOTED IN THE STRUCTURAL DOCUMENTS. EXCEPT REINFORCEMENT MARKED "CONTINUOUS" CAN BE SPLICED AT LOCATIONS DETERMINED BY CONTRACTOR. SPLICES AT OTHER LOCATIONS SHALL BE APPROVED IN WRITING BY THE STRUCTURAL ENGINEER. REINFORCING STEEL SPLICES SHALL BE AS FOLLOWS, UNLESS NOTED OTHERWISE:
- CONCRETE REINFORCEMENT: CLASS B TENSION LAP SEE S0102 FOR REINFORCING LAP LENGTH SCHEDULE MASONRY REINFORCEMENT: MINIMUM LAP LENGTH

LAP (Ld) INCHES

- WHERE REQUIRED, PROVIDE MECHANICAL SPLICE IN CONFORMANCE WITH ACI 318, CHAPTER 12. SUBMIT ENGINEERING DATA INCLUDING INSTALLATION PROCEDURES, TESTING PROCEDURES, AND SAMPLES FOR APPROVAL PRIOR TO INSTALLATION OF ANY MECHANICAL SPLICES. MECHANICAL SPLICES MAY SUBSTITUTE FOR LAP SPLICES FOR BARS OTHER THAN #14 AND #18 FOLLOWING THE REQUIREMENTS LISTED ABOVE.
- ALL WELDED WIRE FABRIC (WWF) SHALL BE LAPPED TWO (2) FULL MESH PANELS AND TIED SECURELY. WELDED WIRE FABRIC SHALL BE PROVIDED IN FLAT SHEETS,
- WHERE VERTICAL WALL REINFORCING IS SPLICED AT TOP OF FOOTING, PROVIDE SPLICE BARS IN FOOTING SAME SIZE, GRADE, AND SPACING AS VERTICAL WALL REINFORCING, UNO. PROVIDE STANDARD HOOK IN FOOTING AND LAP WITH VERTICAL WALL REINFORCING AS NOTED ABOVE.
- AT COLUMNS AND PIERS. WHERE VERTICAL REINFORCING IS SPLICED AT TOP OF FOOTING, PROVIDE SPLICE BARS IN FOOTING SAME SIZE, GRADE, AND QUANTITY AS VERTICAL COLUMN OR PIER REINFORCING. PROVIDE STANDARD HOOK IN FOOTING AND LAP WITH COLUMN OR PIER REINFORCING PER LAPS INDICATED ABOVE, UNO. MECHANICAL SPLICES ARE REQUIRED FOR #14 AND #18 BARS AND WHERE INDICATED
- 10. PLACE REINFORCEMENT AS FOLLOWS, UNLESS NOTED OTHERWISE: 10.1 CAST-IN-PLACE CONCRETE REINFORCEMENT COVER

PERMANENTLY EXPOSED TO EARTH:

CAST AGAINST THE EARTH **EXPOSED TO EARTH OR WEATHER:** 

FOR BARS LARGER THAN A NO. 5 BAR 2" CLEAR

NO. 5 BARS OR SMALLER 1 1/2" C**LE**AR

NOT EXPOSED TO WEATHER OR IN CONTACT WITH EARTH: WALLS 3/4" C**LE**AR 3/4" C**LE**AR SI ABS

COLUMN TIES 1 1/2" C**LE**AR BEAM/GIRDER STIRRUPS 1 1/2" C**LE**AR

10.2 MASONRY CONCRETE REINFORCEMENT COVER

MASONRY REINFORCING STEEL SHALL BE PLACED IN THE CENTER OF CMU CELLS, UNLESS NOTED OTHERWISE. IF REINFORCING STEEL IS NOTED TO BE PLACED OTHER THAN THE CENTER OF THE CELL, PLACE BAR TO ACHIEVE 2" CLEAR COVER BETWEEN REINFORCING AND OUTSIDE FACE OF CMU BLOCK

- 11. FOR BEAMS AND SLABS, THE MINIMUM CLEAR DISTANCE BETWEEN PARALLEL BARS SHALL BE THE DIAMETER OF THE BAR, 1-1/3 TIMES THE MAXIMUM AGGREGATE SIZE. BUT IN NO CASE LESS THAN 1". WHERE TWO OR MORE LAYERS OF REINFORCING ARE USED, PROVIDE #8 SPACERS AT 4'-0" ALONG BEAM. FOR COLUMNS AND WALLS, THE MINIMUM CLEAR DISTANCE BETWEEN BARS SHALL BE 1-1/2 BAR DIAMETERS, BUT IN NO CASE LESS THAN 1-1/2"
- 12. PLACEMENT OF REINFORCEMENT SHALL BE SUCH THAT ADEQUATE SPACE IS PROVIDED BETWEEN BARS TO ALLOW PASSAGE OF CONCRETE, VIBRATORS, ETC.
- 13. BARS SHALL BE IN CONTACT WHEN FORMING LAP SPLICES, UNLESS NOTED OTHERWISE.
- 14. ALL REINFORCEMENT SHALL BE BENT COLD, UNLESS NOTED OTHERWISE.
- 15. ADDITIONAL BARS SHALL BE PROVIDED AROUND ALL FLOOR AND WALL OPENINGS AS SHOWN ON DETAILS, ETC.

## CAST-IN PLACE CONCRETE

CONCRETE SHALL HAVE THE FOLLOWING MINIMUM SPECIFIED 28-DAY COMPRESSIVE

1.1 NORMAL WEIGHT STRUCTURAL CONCRETE:

FOOTINGS, PEDESTALS 4,000 PSI FOUNDATION, BASEMENT, RETAINING WALLS 4,000 PSI SLABS-ON-GRADE

SEE SHEAR WALL ELEVATIONS S**HE**AR WA**LL**S 1.2 LIGHTWEIGHT STRUCTURAL CONCRETE:

(115-118 PCF UNIT WEIGHT)

SLABS ON COMPOSITE STEEL DECK 3.500 PSI 4,000 PSI TOPPING SLABS

- BASE GROUT SHALL BE NON-SHRINK GROUT CONFORMING TO ASTM C1107. USE NON-METALLIC GROUT WITH MINIMUM STRENGTH EQUAL TO 2 TIMES THE SPECIFIED 28-DAY COMPRESSIVE STRENGTH OF THE ASSOCIATED FOUNDATION.
- NO CALCIUM CHLORIDE SHALL BE USED IN ANY CONCRETE.
- THE CONTRACTOR SHALL SUBMIT FOR APPROVAL DETAILED DRAWINGS SHOWING THE LOCATION OF ALL CONSTRUCTION JOINTS, CURBS, SLAB DEPRESSIONS, SLEEVES. OPENINGS, ETC. IN ALL CONCRETE WORK. STOP IN WORK SHALL BE MADE AT THE THIRD POINT OF SPAN WITH VERTICAL BULKHEADS. THERE SHALL BE NO HORIZONTAL CONSTRUCTION JOINTS IN SLABS AND BEAMS. PROVIDE KEYS IN SLABS OR BEAMS AT CONSTRUCTION JOINTS. ALL REINFORCING SHOWN ON THE DRAWINGS SHALL BE CONTINUOUS THROUGH CONSTRUCTION JOINTS.
- ALL CONSTRUCTION JOINTS SHALL BE WIRE BRUSHED, CLEANED, AND COATED WITH CONCRETE BONDING AGENT IMMEDIATELY PRIOR TO PLACING NEW CONCRETE.
- FORMS SHALL BE CAMBERED AS INDICATED. CAMBER SHALL NOT BE ACHIEVED BY ADDING THICKNESS TO SLAB OR BEAMS.
- REFER TO ARCHITECTURAL DRAWINGS FOR CONCRETE FINISHES, REVEALS, AND/OR
- HANGER INSERTS IN CONCRETE SLAB SHALL BE PLACED SO THAT 1" CONCRETE
- COVER OCCURS BETWEEN INSERT AND TOP OF SLAB. CONDUIT SHALL BE PLACED UNDER THE SLAB. NO CONDUITS SHALL BE PERMITTED
- TO RUN HORIZONTALLY IN COMPOSITE OR FORMED SLABS OR SLABS ON GRADE. SLEEVE PLUMBING OPENINGS IN CONCRETE WALLS AND SLABS BEFORE PLACING
- CONCRETE. ADJUST REINFORCING AT SLEEVES TO PROVIDE REQUIRED COVER TO REINFORCING, CORING IS NOT PERMITTED IN FLOOR SLABS. ROOF SLABS. COLUMNS, AND WALLS UNLESS PERMITTED BY OWNER'S REPRESENTATIVE
- 11. CONTRACTOR SHALL PROVIDE PROPER STORAGE FACILITIES FOR CONCRETE TEST CYLINDERS TO MAINTAIN CYLINDERS BETWEEN 60 DEGREES AND 85 DEGREES F AND IN A MOIST CONDITION.

## CONCRETE MASONRY

CONCRETE MASONRY WORK SHALL CONFORM TO ACI 530, BUILDING CODE REQUIREMENTS FOR MASONRY STRUCTURES AND ACI 530.1, SPECIFICATION FOR MASONRY STRUCTURES.

- MINIMUM COMPRESSIVE STRENGTH OF CONCRETE MASONRY SHALL BE F'M = 1,500 PSI.
- 3. CONCRETE MASONRY UNITS SHALL CONFORM TO THE FOLLOWING
- 3.1 LOAD BEARING AND NON-LOAD BEARING MASONRY WALLS: ASTM C90 HOLLOW
- 3.2 CONCRETE BUILDING BRICK: ASTM C55
- MORTAR SHALL CONFORM TO ASTM C270:
- 4.1 TYPE "S" MORTAR, UNO.
- GROUT FOR ALL MASONRY SHALL CONFORM TO ASTM C476. SUBMIT GROUT MIX DESIGNS INCLUDING MANUFACTURER'S CERTIFICATION FOR MATERIALS USED PRIOR TO THE START OF ANY MASONRY WORK.:
- 5.1 PROVIDE FINE GROUT IN GROUT SPACES LESS THAN 2" IN ANY HORIZONTAL DIMENSION OR WHERE CLEARANCE BETWEEN REINFORCING AND MASONRY IS
- 5.2 PROVIDE COURSE GROUT IN SPACES 2" OR GREATER IN ALL HORIZONTAL DIMENSIONS PROVIDED THE CLEARANCE BETWEEN REINFORCING AND MASONRY IS NOT LESS THAN 3/4".
- 5.3 THE MINIMUM COMPRESSIVE STRENGTH AT 28 DAYS FOR ALL GROUT SHALL BE 3000 PSI, UNLESS NOTED OTHERWISE.
- ALL TESTING AND INSPECTION OF MASONRY WORK SHALL BE AS SPECIFIED IN
- 6.1 WALLS INSPECT EACH SECTION OF WALL AND VERIFY REINFORCEMENT PLACEMENT PRIOR TO GROUTING OPERATIONS, VERIFY THAT VERTICAL CELLS AND BOND BEAMS TO RECEIVE GROUT ARE CLEANED OUT TO RECEIVE GROUT.
- OBSERVE GROUT OPERATIONS TO INSURE CONFORMANCE WITH PLANS AND SPECIFICATIONS.
- 7. FOR BRICK EXPANSION AND CONTROL JOINTS SEE ARCHITECTURAL DRAWINGS 8. CMU CONTROL JOINTS SHALL BE LOCATED USING THE FOLLOWING GUIDELINES
- 8.1 UNLESS SPECIFICALLY NOTED, CONTROL JOINT SPACING IN STRAIGHT WALLS SHALL BE THE LESSER OF ONE-AND-ONE-HALF TIMES THE WALL HEIGHT (1-1/2 x H) AND 25'. AT CORNERS AND INTERSECTIONS, LOCATE CONTROL JOINT WITHIN ONE-HALF (1/2) STRAIGHT WALL JOINT SPACING FROM CORNER OR INTERSECTING WALL.
- 8.2 LOCATE CONTROL JOINT AT TRANSITION BETWEEN LOAD-BEARING CMU WALL AND NON-LOAD-BEARING CMU WALL.
- 8.3 LOCATE CONTROL JOINT AT TRANSITION BETWEEN WALL SUPPORTED ON SPR**E**AD **F**OO**TIN**GS A**N**D WALL SUPPOR**TE**D O**N THICKENE**D SLAB **F**OO**TIN**GS. 8.4 LOCATE CONTROL JOINT AT ABRUPT CHANGE IN WALL HEIGHT OR THICKNESS 8.5 LOCATE CONTROL JOINT AT TRANSITION BETWEEN INTERIOR WALL AND EXTERIOR WALL.
- 8.6 COORDINATE LOCATION OF CONTROL JOINT IN CMU WALL SUPPORTED ON THICKENED SLAB FOOTING SO THAT SLAB CONTROL JOINTS AND WALL CONTROL JOINTS ALIGN.
- 8.7 DO NOT LOCATE CONTROL JOINT WITHIN 12" OF CENTERLINE OF BEAM BEARING ON WALL.
- 8.8 CONTROL JOINTS IN CMU WALLS SHALL BE CONTINUOUS FROM TOP OF FOUNDATION TO TOP OF WALL UNLESS SPECIFICALLY NOTED. 8.9 AT CONTROL JOINTS IN CMU WALLS, TERMINATE HORIZONTAL JOINT
- REINFORCING 2" CLEAR EACH SIDE OF JOINT. 8.10 AT CONTROL JOINTS IN CMU WALLS, HORIZONTAL BOND BEAM REINFORCING SHALL BE TERMINATED 2" CLEAR EACH SIDE OF JOINTS EXCEPT AS
- A. BOND BEAM REINFORCING NEAREST EACH FLOOR OR ROOF LEVEL SHALL BE CONTINUOUS ACROSS CONTROL JOINTS. B. WHERE THE FLOOR-TO-FLOOR OR FLOOR-TO-ROOF HEIGHT BETWEEN BOND BEAMS EXCEEDS 12'-0", REINFORCING IN ONE INTERMEDIATE BOND BEAM APPROXIMATELY MID-HEIGHT OF WALL SPAN SHALL BE CONTINUOUS ACROSS CONTROL JOINTS.
- C. BOND BEAM REINFORCING AT TOP OF PARAPET WALLS SHALL BE CONTINUOUS ACROSS CONTROL JOINTS.
- D. WHERE BOND BEAMS ARE STEPPED TO FOLLOW SLOPED ROOF LINES, BOND BEAM REINFORCING SHALL BE CONTINUOUS ACROSS CONTROL JOINTS.
- CONTINUOUS STEEL ANGLES, CHANNELS, PLATES, ETC. ANCHORED TO CMU WALL SHALL BE TERMINATED EACH SIDE OF CONTROL JOINT LOCATIONS, UNLESS SPECIFICALLY NOTED. PROVIDE ADDITIONAL CONNECTION EACH SIDE OF WALL CONTROL JOINT LOCATION.

## STRUCTURAL STEEL

- ALL DETAILING, FABRICATION, AND ERECTION SHALL CONFORM TO THE 'SPECIFICATION FOR STRUCTURAL STEEL BUILDINGS" AND THE AISC "CODE OF
- STANDARD PRACTICE FOR STEEL BUILDINGS AND BRIDGES", CURRENT EDITION. ALL STRUCTURAL STEEL SHALL CONFORM TO THE FOLLOWING (UNLESS NOTED
- OTHERWISE):
- 2.1 ASTM A36 FOR ANGLES, PLATES, & WHERE NOTED A36, UNO. 2.2 ASTM A992 OR A572, GRADE 50 (Fy = 50 KSI) FOR ALL WIDE FLANGE
- SECTIONS AND CHANNELS. 2.3 ASTM A500, GRADE B FOR STRUCTURAL STEEL TUBING (NOTED HSS...).
- 2.4 ASTM A53, TYPE S, GRADE B FOR STRUCTURAL STEEL PIPE (NOTED PIPE) 2.5 WHERE STEEL MATERIAL IS NOT INDICATED, OR NOTED ABOVE STEEL SHALL
- 3. BOLTS, ANCHOR RODS, AND HEADED STUDS: 3.1 ALL BOLTS, NUTS, AND WASHERS SHALL CONFORM TO THE REQUIREMENTS OF
- ASTM A325 OR ASTM A490. ALL BOLTS SHALL BE A MINIMUM 3/4" DIAMETER UNLESS NOTED OTHERWISE.
- 3.2 ANCHOR RODS SHALL CONFORM TO ASTM F1554, GRADE 36, UNLESS NOTED
- 3.3 HEADED STUDS SHALL BE 3/4" DIAMETER, UNLESS NOTED OTHERWISE, AND SHALL CONFORM TO AWS D1.1. LENGTH OF STUD SHALL BE AS FOLLOWS UNLESS NOTED OTHERWISE ON THE DRAWING: COMPOSITE BEAMS: 4-7/8" LONG HEADED STUDS (FOR 6-1/4" SLABS)
- MISCELLANEOUS EMBEDS: SEE CONTRACT DRAWINGS ALL WELDING ELECTRODES SHALL BE E70XX EXCEPT ELECTRODES FOR WELDING
- METAL DECK SHALL BE E60XX. CONNECTIONS SHALL BE DETAILED BASED ON THE DESIGN INFORMATION PROVIDED IN THE CONTRACT DOCUMENTS, DEVIATION FROM THE CONNECTION DETAILS DEPICTED IN THE CONTRACT DOCUMENTS SHALL NOT BE PERMITTED WITHOUT
  - WRITTEN PERMISSION FROM THE STRUCTURAL ENGINEER. 5.1 CONNECTION FORCES PROVIDED ARE LRFD FORCES. CONNECTIONS SHALL BE DESIGNED WITH THE LRFD PROVISIONS OF THE MANUAL.
  - 5.2 STANDARD SHEAR CONNECTIONS SHALL UTILIZE HIGH-STRENGTH BOLTS IN BEARING-TYPE CONNECTIONS WITH THREADS INCLUDED IN THE SHEAR PLANE(S). STANDARD SHEAR CONNECTIONS SHALL BE DETAILED AS DOUBLE-ANGLE, SINGLE-PLATE, SINGLE-ANGLE, OR TEE CONNECTIONS IN ACCORDANCE WITH CONNECTION TABLES IN THE "STEEL CONSTRUCTION MANUAL", 13TH EDITION, PART 10.
- 5.3 FOR WELDED CONNECTIONS, USE PREQUALIFIED WELDED JOINTS IN ACCORDANCE WITH AISC AND THE STRUCTURAL WELDING CODE OF THE AMERICAN WELDING SOCIETY. "NON-PREQUALIFIED JOINTS" SHALL BE QUALIFIED PRIOR TO FABRICATION.
- 5.4 STRENGTH (LRFD) DESIGN REACTIONS SHALL BE AS SHOWN ON THE STRUCTURAL DRAWINGS. IF REACTIONS ARE NOT SHOWN: FOR BEAMS W10 AND SMALLER, PROVIDE CONNECTION WITH A MINIMUM 10 KIP SHEAR CAPACITY: FOR BEAMS W12 AND LARGER. THE FACTORED DESIGN REACTION SHALL BE HALF OF THE MAXIMUM FACTORED UNIFORM LOAD TABULATED IN THE "STEEL CONSTRUCTION MANUAL", 13TH EDITION, PART 3.
- 5.5 STEEL CONNECTIONS NOT SPECIFICALLY DETAILED ON THE STRUCTURAL DRAWINGS SHALL BE DESIGNED AND DETAILED BY THE FABRICATOR'S ENGINEER. DETAILING SHALL BE PERFORMED USING RATIONAL ENGINEERING DESIGN AND STANDARD PRACTICE IN ACCORDANCE WITH THE CONTRACT DOCUMENTS. THE GENERAL DETAILS SHOWN ON THE DRAWINGS ARE CONCEPTUAL ONLY AND DO NOT INDICATE THE REQUIRED NUMBER OF BOLTS OR WELD SIZES, UNLESS NOTED OTHERWISE.
- 5.6 THE MINIMUM NUMBER OF BOLTS PER CONNECTION SHALL BE TWO (2). 5.7 MINIMUM FILLET WELDS SHALL COMPLY WITH AISC BUT SHALL NOT BE
- LESS THAN 3/16", UNLESS NOTED OTHERWISE. 6. COMPOSITE MEMBERS:
- 6.1 COMPOSITE FLOOR MEMBERS ARE DESIGNED TO BE UNSHORED UNLESS NOTED OTHERWISE. THE WEIGHT OF THE WET CONCRETE WILL RESULT IN DEFLECTIONS OF THE SUPPORTING STEEL DECK, BEAMS, AND GIRDERS ALL OVERRUNS OF CONCRETE QUANTITIES ARE TO BE ANTICIPATED AND INCLUDED IN THE CONTRACTOR'S BID. THE CONTRACTOR SHALL COORDINATE EMBEDDED ITEMS REQUIRED FOR ARCHITECTURAL, STRUCTURAL, AND MECHANICAL ELEMENTS. CONCRETE FLOORS UTILIZING UNSHORED CONSTRUCTION
- SHALL BE SCREEDED LEVEL. 6.2 STUD LAYOUT SHALL BE PER AISC CODE, CHAPTER I.
- 6.3 HEADED SHEAR STUD CONNECTORS, WELDING, AND TESTING SHALL CONFORM TO THE REQUIREMENTS OF STRUCTURAL WELDING CODE - STEEL, AWS D1.1.
- 6.4 TOP FLANGE OF STRUCTURAL STEEL BEAMS AND SUPPORTS TO RECEIVE STUDS SHALL BE FREE OF PAINT, SCALE, RUST, AND OTHER SUBSTANCES WHICH WOULD BE DETRIMENTAL TO THE WELDING OF STUDS THROUGH DECK.
- 6.5 WHERE A CLOSURE PLATE OR MISCELLANEOUS STEEL MEMBER IS WELDED TO THE TOP FLANGE OF BEAM TO RECEIVE SHEAR STUDS, ATTACH STUDS DIRECTLY TO BEAM FLANGE AND NOT TO (OR THROUGH) PLATES OR
- MISCELLANEOUS MEMBER. 6.6 REMOVE ALL FERRELS AND DEBRIS FROM DECK PRIOR TO SLAB PLACEMENT.
- 6.7 PROVIDE D2L ANCHORS WHERE INDICATED IN SECTIONS AND DETAILS. "STICK WELDING" OF REINFORCING IS NOT PERMITTED AS AN ALTERNATE. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE CONTROL OF ALL ERECTION PROCEDURES AND SEQUENCES WITH RELATION TO TEMPERATURE DIFFERENTIALS,
- ESPECIALLY WITH RESPECT TO STRUCTURAL STEEL FRAMING INTO MASONRY OR CONCRETE WALLS, BEAMS, OR COLUMNS. THE LATERAL LOAD RESISTING SYSTEM INCLUDES STRUCTURAL STEEL, NON-STRUCTURAL STEEL ELEMENTS, AND THE DIAPHRAGM AS INDICATED BELOW. ALL ELEMENTS OF THE LATERAL LOAD RESISTING SYSTEM AND DIAPHRAGM ARE REQUIRED TO BE COMPLETE AS INDICATED AND DETAILED IN THE STRUCTURAL CONTRACT DOCUMENTS TO PROVIDE THE LATERAL STRENGTH AND STABILITY OF THE STEEL STRUCTURE. THE STRUCTURE SHALL
- BE CONSIDERED UNSTABLE UNTIL THESE SYSTEMS AND ELEMENTS ARE COMPLETE. 8.1 THE LATERAL LOAD RESISTING SYSTEM FOR THE STEEL STRUCTURE INCLUDES THE FOLLOWING ELEMENTS AS INDICATED AND DETAILED IN THE STRUCTURAL CONTRACT
  - CONNECTIONS, BASEPLATES, ANCHOR RODS(BOLTS), AND GROUT CAST-IN-PLACE CONCRETE SHEARWALLS BRACED FRAMES
- MOMENT FRAMES 8.2 THE LATERAL LOAD RESISTING DIAPHRAGM FOR THE STEEL STRUCTURE INCLUDES THE FOLLOWING ELEMENTS AS INDICATED AND DETAILED IN THE STRUCTURAL CONTRACT DOCU**MENT**S:
  - STEEL FLOOR DECK WITH CONCRETE AT 28 DAY STRENGTH STEEL ROOF DECK DIAPHRAGM BRACING
- STABILITY BRACING: THE STABILITY OF STRUCTURAL STEEL ELEMENTS INCLUDING INDIVIDUAL HOT-ROLLED STEEL SHAPES AND FABRICATED TRUSSES IS PROVIDED BY THE FOLLOWING ELEMENTS AS INDICATED AND DETAILED IN THE STRUCTURAL CONTRACT DOCUMENTS. THESE ELEMENTS SHALL BE COMPLETE AS SHOWN IN THE STRUCTURAL CONTRACT DOCUMENTS BEFORE ANY TEMPORARY MEANS AND METHODS REQUIRED FOR ERECTION ARE REMOVED.
- STEEL FLOOR DECK WITH CONCRETE AT 28 DAY STRENGTH STEEL ROOF DECK DIAPHRAGM BRACING STRUCTURAL STEEL BRACING AND KICKERS
- GRADE BEAMS CONNECTED TO TOPS OF COLUMN PEDESTALS AT 28 DAY STRENGTH 10. ALL WELDING SHALL BE DONE BY QUALIFIED WELDERS AND SHALL CONFORM TO THE AWS D1.1. "STRUCTURAL WELDING CODE - STEEL", CURRENT EDITION.
- 11. THE STRUCTURAL STEEL MEMBERS HAVE NOT BEEN DESIGNED TO ACCOMMODATE THE TORSION RESULTING FROM THE ECCENTRIC LOADING OF THE PRECAST PANELS. CURTAINWALL SYSTEMS, LIGHT GAUGE METAL FRAMING, ETC. SUPPLEMENTAL SECONDARY BRACING SHALL BE DESIGNED AND PROVIDED BY THE SUPPLIER TO ELIMINATE THE TORSION.
- 12. ALL STEEL EXPOSED TO WEATHER OR MOISTURE SHALL BE GALVANIZED. ALL BEAMS AND JOISTS SHALL BE FABRICATED WITH A NATURAL CAMBER UP. PROVIDE CAMBERS AS INDICATED ON THE DRAWINGS. THE CAMBER OF STEEL MEMBERS SHALL BE VERIFIED IN THE SHOP AND THE FIELD PER THE

SPECIFICATIONS.

- 14. ALL ADDITIONAL STEEL REQUIRED BY THE CONTRACTOR FOR ERECTION PURPOSES AND SITE ACCESS OF STOCKPILED MATERIALS SHALL BE PROVIDED AT NO COST TO THE OWNER. ALL SUCH ADDITIONAL STEEL SHALL BE REMOVED BY THE CONTRACTOR UNLESS APPROVED BY THE OWNER IN WRITING.
- 15. FIELD CUTTING OF STRUCTURAL STEEL FOR THE WORK OF OTHER TRADES OR FOR ANY OTHER REASON SHALL NOT BE MADE WITHOUT PRIOR WRITTEN APPROVAL BY ARCHITECT FOR EACH SPECIFIC CASE.

USC BUSINESS PARTNERSHIP FOUNDATION ON BEHALF OF USC CAMPUS PLANNING & CONSTRUCTION UNIVERSITY OF SOUTH CAROLINA DARLA MOORE SCHOOL OF BUSINESS CONSTRUCTION STRUCTURE OSE PROJECT NUMBER

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