AMERICAN CONCRETE INSTITUTE "BUILDING CODE REQUIREMENTS FOR STRUCTURAL CONCRETE" (ACI 318-

AMERICAN SOCIETY OF CIVIL ENGINEERS, "MINIMUM DESIGN LOADS FOR BUILDINGS AND OTHER

AMERICAN SOCIETY OF TESTING AND MATERIALS NATIONAL DESIGN SPECIFICATION FOR WOOD

CONSTRUCTION, 2015 EDITION

STRUCTURES" (ASCE 7-10)

CONCRETE

MIXING AND PLACING OF ALL CONCRETE AND SELECTION OF MATERIALS SHALL BE IN ACCORDANCE WITH THE BUILDING CODE. PROPORTIONS OF AGGREGATE TO CEMENT SHALL PRODUCE DENSE WORKABLE MIX WHICH CAN BE PLACED WITHOUT SEGREGATION OR EXCESS FREE SURFACE WATER. ALL CONCRETE, INCLUDING SLABS ON GROUND, SHALL HAVE AN ACCEPTABLE WATER-REDUCING ADMIXTURE ADDED IN ACCORDANCE WITH THE MANUFACTURER'S DIRECTIONS. ALL CONCRETE WALKS AND PAVEMENTS EXPOSED TO THE WEATHER SHALL CONTAIN AN ACCEPTABLE ADMIXTURE TO PRODUCE 4 TO 6 PERCENT ENTRAINED AIR.

MAXIMUM SIZE OF AGGREGATE SHALL BE 1-1/2 INCHES, BUT MAXIMUM SIZE OF AGGREGATE SHALL NOT BE MORE THAN THREE-QUARTERS OF THE CLEAR DISTANCE BETWEEN REINFORCING BARS.

MIX DESIGNS SHALL BE SUBMITTED TO THE ENGINEER AND THE CITY OF MERCER ISLAND BUILDING DEPARTMENT FOR ACCEPTANCE PRIOR TO USE. MAXIMUM WATER-TO -CEMENT RATIO AND SLUMP SHALL BE AS FOLLOWS FOR VARIOUS CONCRETE STRENGTHS (fc) BASED ON STANDARD 28-DAY CYLINDER TESTS WHEN STRENGTH DATA FROM TRIAL BATCHES OR FIELD EXPERIENCE ARE NOT AVAILABLE.

	MAXIMUM WA	NUM WATER-TO-CEMENT RATIO BY WEIGHT			
fc	NON-AIR ENTRAINED	AIR FNTRAINED	MAXIMUM SLUMP	LOCATION	
2500 psi	0.44	0.40	5	all conc	

CONSTRUCTION JOINTS

ALL CONSTRUCTION JOINTS IN WALLS, SLABS, AND BEAMS SHALL BE KEYED IN ACCORDANCE WITH THE TYPICAL CONSTRUCTION JOINT DETAILS SHOWN ON THE STRUCTURAL DRAWINGS OR, AT THE CONTRACTORS OPTION. SHALL BE INTENTIONALLY ROUGHENED IN ACCORDANCE WITH THE FOLLOWING: THE SURFACE OF ROUGHENED JOINTS SHALL BE SAND BLASTED OR ROUGHENED WITH A CHIPPING HAMMER TO EXPOSE THE AGGREGATE EMBEDDED IN THE PREVIOUS POUR. THE EXPOSED AGGREGATE SHALL PROTRUDE A MINIMUM OF 1/4 INCH. ALL SURFACES OF CONSTRUCTION JOINTS SHALL BE CLEANED AND LAITANCE REMOVED. IMMEDIATELY BEFORE NEW CONCRETE IS PLACED, ALL CONSTRUCTION JOINTS SHALL BE WETTED AND STANDING WATER REMOVED. THE CONTRACTOR SHALL SUBMIT THE PROPOSED LOCATION OF ALL CONSTRUCTION JOINTS TO THE ENGINEER FOR ACCEPTANCE PRIOR TO STARTING FORMWORK. WATERSTOPS SHALL BE INSTALLED AND PROTECTED AT ALL CONSTRUCTION JOINTS AT OR BELOW GRADE WHERE WATER INTRUSION CAN OCCUR.

REINFORCING STEEL

ALL REINFORCING SHALL BE NEW BILLET STOCK ASTM A615, GRADE 60. BARS SHALL BE SECURELY TIED IN PLACE WITH #16 DOUBLE-ANNEALED IRON WIRE. BARS SHALL BE SUPPORTED ON ACCEPTABLE NON-CORRODIBLE CHAIRS. REINFORCING STEEL SHALL BE DETAILED IN ACCORDANCE WITH THE ACI 315 "MANUAL OF STANDARD PRACTICE FOR DETAILING OF REINFORCED CONCRETE STRUCTURES." CONTRACTOR SHALL COORDINATE REINFORCING STEEL PLACEMENT DETAILS AND PROVIDE TEMPLATES FOR PLACING STEEL IN CONGESTED AREAS AS NECESSARY

LAP ALL REINFORCING BARS AS NOTED ON THE DRAWINGS. MECHANICAL OR WELDED BUTT SPLICES SHALL BE USED SUBJECT TO ENGINEER'S APPROVAL. MECHANICAL SPLICES SHALL DEVELOP 125% OF THE SPECIFIED YIELD STRENGTH OF THE SPLICED BARS IN BOTH TENSION AND COMPRESSION, UNLESS NOTED OTHERWISE

REINFORCING STEEL MATERIALS

DEFORMED BARS DEFORMED WELDED WIRE ASTM A497 (Fy = 70 ksi) FABRIC

ASTM A615, GRADE 60

MINIMUM CAST-IN-PLACE CONCRETE COVER OVER REINFORCING STEEL, UNLESS NOTED OTHERWISE, SHALL BE AS FOLLOWS:

CONCRETE CAST AGAINST AND PERMANENTLY EXPOSED TO EARTH: ALL BAR SIZES 3 INCHES

CONCRETE EXPOSED TO EARTH OR WEATHER: #5 BAR, W31 OR D31 WIRE 11/2 INCHES

WALLS (INTERIOR FACE), SLABS, JOISTS #11 BAR & SMALLER

PROVIDE L-SHAPED CORNER BARS AT ALL WALL AND FOOTING CORNERS AND INTERSECTIONS UNLESS NOTED OTHERWISE. MATCH HORIZONTAL REINFORCING BAR SIZE AND QUANTITY. LAP 50 BAR DIAMETERS.

DRILLED-IN-CONCRETE ANCHORS (DICA)

ACCEPTABLE DRILLED-IN-CONCRETE ANCHORS OF SIZE, NUMBER AND SPACING AS SHOWN ON THE DRAWINGS SHALL BE AS FOLLOWS:

FOR CONCRETE: SIMPSON STRONG-TIE STRONG-BOLT 2 WEDGE ANCHORS (ESR #3037), HILTI KWIK BOLT TZ CONCRETE ANCHORS (ESR #1917), ITW RED HEAD TRUBOLT CARBON STEEL WEDGE ANCHORS (ESR #2427), POWERS FASTENERS POWER-STUD+ SD2 CONCRETE ANCHOR (ESR #2502), OR APPROVED EQUAL.

EPOXY ADHESIVE

EPOXY ADHESIVE FOR CONCRETE SHALL BE AS FOLLOWS: SIMPSON STRONG-TIE "SET-XP EPOXY ADHESIVE" (ESR #2508), HILTI "HIT-HY 200 A" (ESR #3187), HILTI "HIT-RE 500 V3 EPOXY ADHESIVE ANCHOR SYSTEM" (ESR #3814), OR APPROVED EQUAL

CARPENTRY

FRAMING LUMBER SHALL BE GRADED AND MARKED IN CONFORMANCE WITH WCLIB STANDARD GRADING RULES FOR WEST COAST LUMBER, LATEST EDITION. FURNISH TO THE FOLLOWING MINIMUM STANDARDS 2x,3x & 4x DOUGLAS-FIR NO. 2, Fb = 900 PSI DOUGLAS-FIR NO. 1, Fb = 1350 PSI

EXPOSED TIMBER FRAMING, BOARDS AND DECKING SHALL BE ROUGH SAWN TO THE DIMENSIONS INDICATED. FRAMING NOT EXPOSED MAY BE SURFACED AND SIZES INDICATED ARE NOMINAL

GLUED LAMINATED MEMBERS SHALL BE FABRICATED IN CONFORMANCE WITH ANSI STANDARD A190.1. EACH MEMBER SHALL BEAR AN AITC OR APA EWS IDENTIFICATION MARK AND SHALL BE ACCOMPANIED BY AN AITC OR APA EWS CERTIFICATE OF CONFORMANCE. ALL SIMPLE SPAN BEAMS SHALL BE DOUGLAS FIR COMBINATION 24F-V4-1.8E (Fb = 2,400 PSI, Fv = 0.72x265 = 190 PSI, E = 1,800,000 PSI). ALL CANTILEVERED BEAMS SHALL BE DOUGLAS FIR COMBINATION 24F-V8-1.8E (Fb = 2400 PSI. Fv = 190 PSI. E = 1.800.000 PSI). CAMBER ALL GLULAM BEAMS TO 2,000' RADIUS, UNLESS SHOWN OTHERWISE ON THE PLANS.

ALL LUMBER WITH A LEAST DIMENSION OF 2" (NOMINAL) SHALL BE STAMPED SURFACE-DRY AND SHALL HAVE MOISTURE CONTENT WHEN SURFACED AND WHEN INSTALLED OF NOT MORE THAN 19 PERCENT. LUMBER WITH A LEAST DIMENSION OF 4" (NOMINAL) OR GREATER SHALL BE STAMPED SURFACE-GREEN AND AIR-DRIED TO A MOISTURE CONTENT OF NOT MORE THAN 19 PERCENT PRIOR TO ITS USE IN FRAMING THE STRUCTURE

ALL WOOD PLATES IN DIRECT CONTACT WITH CONCRETE OR MASONRY SHALL BE PRESSURE-TREATED WITH AN APPROVED PRESERVATIVE. PROVIDE TWO LAYERS OF ASPHALT IMPREGNATED BUILDING PAPER BETWEEN UNTREATED LEDGERS, BLOCKING, ETC., AND CONCRETE OR MASONRY.

WOOD FRAMING

ALL WOOD FRAMING DETAILS NOT SHOWN OTHERWISE SHALL BE CONSTRUCTED TO THE MINIMUM STANDARDS OF THE BUILDING CODE. MINIMUM NAILING, UNLESS OTHERWISE NOTED, SHALL CONFORM TO TABLE 2304.10.1 OF THE BUILDING CODE. COORDINATE THE SIZE AND LOCATION OF ALL OPENINGS WITH MECHANICAL AND ARCHITECTURAL DRAWINGS.

NAILS SHALL BE MANUFACTURED IN CANADA OR THE UNITED STATES IN SIZES AND TYPES AS FOLLOWS, UNLESS NOTED OTHERWISE: PNEUMATIC NAILING - PLAIN SHANK, COATED OR GALVANIZED 8d = .131 DIAMETER x 2-1/2" MINIMUM LENGTH 10d = .131 DIAMETER x 3" MINIMUM LENGTH

16d = .131 DIAMETER x 3-1/2" MINIMUM LENGTH HAND NAILING - SINKERS, COATED 8d = 11-1/2 GAGE x 2-3/8"

10d = 11 GAGE x 2-7/8" 16d = 9 GAGE x 3-1/4" NOTATIONS ON DRAWINGS RELATING TO FRAMING CLIPS, JOIST HANGERS AND OTHER CONNECTING DEVICES REFER TO CATALOG NUMBERS OF CONNECTORS MANUFACTURED BY THE SIMPSON STRONG-TIE COMPANY, SAN LEANDRO, CALIFORNIA. EQUIVALENT DEVICES BY OTHER MANUFACTURERS MAY BE SUBSTITUTED. PROVIDED THEY HAVE ICBO APPROVAL FOR EQUAL OR GREATER LOAD CAPACITIES. SUBMIT MANUFACTURER'S CATALOG AND ICBO REPORTS TO ARCHITECT AND ENGINEER FOR REVIEW WHEN REQUESTING SUBSTITUTIONS. ALL SPECIFIED FASTENERS MUST BE USED AND PROPER INSTALLATION PROCEDURES MUST BE OBSERVED IN ORDER TO OBTAIN ICBO APPROVED LOAD CAPACITIES. VERIFY THAT THE DIMENSIONS OF THE SUPPORTING MEMBER ARE SUFFICIENT TO RECEIVE THE SPECIFIED FASTENERS.

STRUCTURAL DESIGN DATA

DECK DEAD LOAD: DECK LIVE LOAD SNOW LOADS

10 PSF 40 PSF 25 PSF

SEISMIC LOADS: 20015 IBC

Ss = 1.370 g, S1 = 0.527 gSITE CLASS D Fa = 1.00, Fv = 1.50SDS = 0.913, SD1 = 0.527 RISK CATEGORY II, le = 1.00 SEISMIC DESIGN CATEGORY D LIGHT-FRAMED WALLS SHEATHED WITH WOOD STRUCTURAL PANELS RATED FOR SHEAR RESISTANCE

R = 6.5, $\Omega o = 2.5$, Cd = 4DESIGN BASE SHEAR, V = 0.141W = XX KIPS

<u>FOUNDATIONS</u>

FOOTINGS SHALL BEAR ON SOLID UNDISTURBED EARTH (CONTROLLED, COMPACTED STRUCTURAL FILL OR BOTH) AT LEAST 18" BELOW LOWEST ADJACENT FINISHED GRADE. MATERIAL SHALL BE COMPACTED TO 95% MINIMUM OF MAXIMUM DRY DENSITY AS DETERMINED BY ASTM D1557.

FOOTINGS MAY BE POURED IN NEAT EXCAVATIONS PROVIDED SIZE IS INCREASED 3" AT EACH INTERFACE WITH SOIL.

ALL FOOTING EXCAVATIONS SHALL BE HAND CLEANED PRIOR TO PLACING CONCRETE.

ALL ABANDONED FOOTINGS, UTILITIES, ETC. THAT INTERFERE WITH NEW CONSTRUCTION SHALL BE REMOVED.

CONTRACTOR SHALL PROVIDE FOR DESIGN AND INSTALLATION OF ALL CRIBBING, SHEATHING, AND SHORING REQUIRED TO SAFELY RETAIN EXCAVATIONS.

BACKFILL BEHIND ALL WALLS WITH WELL DRAINING, GRANULAR FILL MATERIAL. AND PROVIDE PERFORATED PIPE DRAINS AS DESCRIBED IN THE SOILS REPORT. BACKFILL BEHIND WALLS SHALL NOT BE PLACED BEFORE THE WALL IS PROPERLY SUPPORTED BY THE FLOOR SLAB. OR TEMPORARY BRACING. ALL FOOTINGS SHALL BE CENTERED BELOW CENTERLINE OF COLUMNS OR WALLS ABOVE, UNLESS NOTED OTHERWISE.

SPECIAL INSPECTION

THE FOLLOWING ITEMS REQUIRE SPECIAL INSPECTION PER IBC SECTION 1705. THESE INSPECTIONS SHALL BE PERFORMED BY A SPECIAL INSPECTOR CERTIFIED BY THE CITY OF MERCER ISLAND TO PERFORM THE TYPES OF INSPECTIONS SPECIFIED. SEE THE SPECIFICATIONS FOR ADDITIONAL REQUIREMENTS FOR SPECIAL INSPECTION AND TESTING.

ITEM **DESCRIPTION**

EPOXY ANCHORS, DRILLED-IN INSTALLATION PER INTERNATIONAL CODE

COUNCIL (ICC) EVALUATION SERVICE CONCRETE ANCHORS **REPORTS**

SHOP DRAWINGS

SHOP DRAWINGS FOR REINFORCING STEEL SHALL BE SUBMITTED FOR REVIEW PRIOR TO FABRICATION OF THESE ITEMS.

DIMENSIONS AND QUANTITIES ARE NOT REVIEWED BY THE ENGINEER OF RECORD. THEREFORE THEY SHALL BE VERIFIED BY THE CONTRACTOR. CONTRACTOR SHALL REVIEW AND STAMP DRAWINGS PRIOR TO REVIEW BY THE ENGINEER OF RECORD. CONTRACTOR SHALL REVIEW DRAWINGS FOR CONFORMANCE WITH THE MEANS, METHODS, TECHNIQUES, SEQUENCES AND OPERATIONS OF CONSTRUCTION.

SHOP DRAWING SUBMITTALS PROCESSED BY THE ENGINEER ARE NOT CHANGE ORDERS. THE PURPOSE OF SHOP DRAWING SUBMITTALS BY THE CONTRACTOR IS TO DEMONSTRATE TO THE ENGINEER THAT THE CONTRACTOR UNDERSTANDS THE DESIGN CONCEPT BY INDICATING

SUPPLEMENTARY NOTES

STRUCTURAL DRAWINGS SHALL BE USED IN CONJUNCTION WITH ARCHITECTURAL DRAWINGS FOR BIDDING AND CONSTRUCTION. CONTRACTOR SHALL VERIFY DIMENSIONS AND CONDITIONS FOR COMPATIBILITY AND SHALL NOTIFY ARCHITECT OF ANY DISCREPANCIES PRIOR TO CONSTRUCTION. SEE ARCHITECTURAL DRAWINGS FOR STRUCTURAL DRAWINGS SHALL BE USED IN CONJUNCTION WITH ARCHITECTURAL DRAWINGS FOR BIDDING AND CONSTRUCTION. CONTRACTOR SHALL VERIFY DIMENSIONS AND CONDITIONS FOR COMPATIBILITY AND SHALL NOTIFY ARCHITECT OF ANY DISCREPANCIES PRIOR TO CONSTRUCTION. SEE ARCHITECTURAL DRAWINGS FOR EXACT LOCATIONS AND DIMENSIONS OF DOOR AND WINDOW OPENINGS. SEE MECHANICAL DRAWINGS FOR SIZE AND LOCATION OF MISCELLANEOUS MECHANICAL OPENINGS

CONTRACTOR SHALL VERIFY ALL EXISTING DIMENSIONS, MEMBER SIZES, AND CONDITIONS PRIOR TO COMMENCING ANY WORK. ALL DIMENSIONS OF EXISTING CONSTRUCTION SHOWN ON THE DRAWINGS ARE INTENDED AS GUIDELINES ONLY AND MUST BE VERIFIED.

CONTRACTOR SHALL PROVIDE TEMPORARY BRACING FOR THE STRUCTURE AND STRUCTURAL COMPONENTS UNTIL ALL FINAL CONNECTIONS HAVE BEEN COMPLETED IN ACCORDANCE WITH THE PLANS.

CONTRACTOR SHALL BE RESPONSIBLE FOR ALL SAFETY PRECAUTIONS AND THE METHODS, TECHNIQUES, SEQUENCES OR PROCEDURES REQUIRED TO PERFORM HIS WORK. STRUCTURAL DESIGN OF THE BUILDING IS BASED ON RESISTANCE TO DEAD LOADS, CODE SPECIFIED LATERAL LOADS, AND MAXIMUM EXPECTED SERVICE LOADS. NO CONSIDERATION HAS BEEN GIVEN TO LOADS WHICH WILL BE INDUCED BY ERECTION PROCEDURES. THE CONTRACTOR SHALL VERIFY, TO THE SATISFACTION OF HIMSELF AND THE OWNER, THE ABILITY OF THE STRUCTURE TO RESIST ALL ERECTION LOADS WITHOUT EXCEEDING THE ALLOWABLE STRESSES OF THE MATERIALS USED. WHERE ERECTION LOADS WOULD OVERSTRESS THE STRUCTURE, THE CONTRACTOR SHALL SUBMIT DESIGN DOCUMENTS FOR TEMPORARY BRACING AND STRENGTHENING, INCLUDING FABRICATION AND ERECTION DRAWINGS, TO THE ARCHITECT FOR REVIEW. THESE DOCUMENTS SHALL BEAR THE SEAL AND SIGNATURE OF A REGISTERED STRUCTURAL ENGINEER IN THE STATE OF WASHINGTON. THE CONTRACTOR SHALL PROVIDE, INSTALL AND IF NECESSARY REMOVE SUCH TEMPORARY WORK AS REQUIRED.

CONTRACTOR-INITIATED CHANGES SHALL BE SUBMITTED IN WRITING TO THE ARCHITECT AND STRUCTURAL ENGINEER FOR APPROVAL PRIOR TO FABRICATION OR CONSTRUCTION. CHANGES SHOWN ON SHOP DRAWINGS ONLY WILL NOT SATISFY THIS REQUIREMENT.

DRAWINGS INDICATE GENERAL AND TYPICAL DETAILS OF CONSTRUCTION. WHERE CONDITIONS ARE NOT SPECIFICALLY INDICATED, BUT ARE OF SIMILAR CHARACTER TO DETAILS SHOWN, SIMILAR DETAILS OF CONSTRUCTION SHALL BE USED. SUBJECT TO REVIEW AND APPROVAL BY THE ARCHITECT AND THE STRUCTURAL ENGINEER.

ALL STRUCTURAL SYSTEMS WHICH ARE TO BE COMPOSED OF COMPONENTS TO BE FIELD ERECTED SHALL BE SUPERVISED BY THE SUPPLIER DURING MANUFACTURING, DELIVERY, HANDLING, STORAGE AND ERECTION IN ACCORDANCE WITH INSTRUCTIONS PREPARED BY THE SUPPLIER

GENERAL NOTES, & INDEX

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PLANS

DETAILS

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JACKSON|MAIN ARCHITECTURE 311 FIRST AVENUE SOUTH SEATTLE, WA 98104

GRI HOU 2486 MER(

Design services by

t 206.324.4800

WWW.JACKSONMAIN.COM

Seattle Seattle Structural PS Inc. 3131 Elliott Avenue, Suite 600A

206.343.3000

Seattle, WA 98121



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6 DRAWING INDEX **GENERAL NOTES**





