GENERAL

- 1. ALL CONSTRUCTION SHALL CONFORM TO THE REQUIREMENTS OF THE 2015 EDITION OF THE INTERNATIONAL BUILDING CODE (IBC).
- 2. THE ARCHITECT/ENGINEER (ARCH/ENGR) IS NOT RESPONSIBLE FOR THE LOCATION OF PROPERTY LINES AND/OR EASEMENT, SOIL CONDITIONS, MECHANICAL AND ELECTRICAL WORK, AND THE PRESENCE OF UTILITIES NOT REPORTED TO THE ARCH/ENGR IN WRITING BY THE OWNER
- 3. THE ENGINEER IS NOT RESPONSIBLE FOR FIELD REVIEW OF CONSTRUCTION UNLESS SPECIFICALLY RETAINED FOR THAT PURPOSE
- 4. DRAWINGS SHALL NOT BE SCALED, WRITTEN DIMENSIONS SHALL GOVERN CONSTRUCTION. THE CONTRACTOR SHALL VERIFY DIMENSIONS PRIOR TO CONSTRUCTION AND ANY DISCREPANCIES SHALL BE BROUGHT TO THE ATTENTION OF THE ARCH/ENGR SO THAT CLARIFICATION CAN BE MADE. ALL DIMENSIONS RELATED TO EXISTING CONDITIONS SHALL BE VERIFIED BY THE CONTRACTOR AND SHALL BE SUBMITTED TO THE ARCH/ENGR FOR REVIEW PRIOR TO CONSTRUCTION. DIMENSIONS FOLLOWED BY A +/- SYMBOL SHALL BE FIELD MEASURED AND VERIFIED PRIOR TO COMMENCEMENT
- 5. DETAILS OF CONSTRUCTION NOT SHOWN OR NOTED SHALL BE CONSIDERED OF THE SAME CHARACTER SHOWN FOR SIMILAR CONSTRUCTION, SPECIFICATIONS, WHEN PROVIDED, ARE A PART OF THESE DRAWINGS, SEE SPECIFICATIONS FOR MATERIAL AND WORKMANSHIP REQUIREMENTS.
- 6. THE CONTRACTOR SHALL PROVIDE ALL LABOR EQUIPMENT. MATERIAL AND SERVICES NECESSARY FOR THE EXECUTION OF ALL CONSTRUCTION WORK AS SHOWN ON THE DRAWINGS AND AS NOTED IN THE SPECIFICATIONS.
- 7. THE CONTRACTOR SHALL COMPARE THE DRAWINGS AND NOTIFY THE ARCH/ENGR OF ANY DISCREPANCIES PRIOR TO COMMENCING WITH THE WORK.
- 8. TEMPORARY BRACING AND SHORING NECESSARY TO SUPPORT ANY PORTION OF THE STRUCTURE DURING CONSTRUCTION IS THE RESPONSIBILITY OF THE CONTRACTOR.

FOUNDATIONS

1. REFER TO GEO-TECHNICAL DATA BELOW FOR THE PROJECT DESIGN PARAMETERS. GEOTECHNICAL ENGINEER SHALL VERIFY PLACEMENT OF FILLS AND FOUNDATIONS PRIOR TO PLACEMENT OF FILLS.

2. SPECIFIED CONCRETE MIX AS FOLLOWS:

CONCRETE MIX						
TYPE OF CONSTRUCTION	COMPRESSION STRENGTH @ 28 DAYS, PSI	MAX W/C RATIO	ENTRAINED AIR	SACK MIX		
SLAB ON GRADE (INTERIOR)	3000					
SLAB ON GRADE (EXTERIOR)	3000	0.45	5%			
BASEMENT WALL	2500	0.50		5 1/2		
FOOTINGS	2500	0.50		5 1/2		
CONT. FOOTINGS	2500	0.50		5 1/2		

3. CONCRETE REINFORCEMENT SHALL CONFORM TO ASTM A615, AND PER BELOW.

REBAR - PER ASTM A615					
#4 & LESS	GRADE 40				
#5 & GREATER	GRADE 60				

COVER FOR REINFORCEMENT SHALL BE AS FOLLOWS:

FOOTINGS & RETAINING WALLS (CAST AGAINST SOIL)	3" COVER
SURFACES EXPOSE TO EARTH OR WEATHER	2" COVER
COLUMNS & BEAMS	1 ½" COVER
SLABS & INTERIOR WALLS	$\frac{3}{4}$ " COVER

4. FOUNDATION WALL SHALL EXTEND 6" ABOVE FINISHED GRADE

- 5. FOUNDATION PLATES SHALL BE PRESSURE TREATED (PT) HF 2. 6. INSTALL FOUNDATION ANCHOR BOLTS 4' ON CENTER (UNO) AND EMBED A MINIMUM
- 7" IN CONCRETE
- 7. INSTALL WATER PROOFING MATERIALS ON FOUNDATION WALL SUPPORTING SOIL. 8. ALL FOOTING EXCAVATIONS SHALL BE NEXT AND AS CLOSE TO FOOTING DIMENSIONS

AS PRACTICABLE. 9. ALL FOUNDATIONS SHALL BEAR ON FIRM UNDISTURBED NATIVE SOILS OR ENGINEERED FILLS AT OR EXCEEDING DEPTHS SHOWN ON THE DRAWINGS. ALL SOILS WORK AND SITE GRADING SHALL BE IN ACCORDANCE WITH CHAPTERS 18 OF THE IBC.

GEOTECHNICAL

IN ABSENCE OF GEOTECHNICAL ANALYSIS, THE FOLLOWING DESIGN CRITERIA IS USED:

SOIL BEARING PRESSURE:	2000 PSF
ACTIVE EARTH PRESSURE (RETAINING WALLS):	35 PCF
AT REST EARTH PRESSURE (BASEMENT WALLS):	60 PCF
PASSIVE PRESSURE:	350 PCF
FRICTION COEFFICIENT:	0.35

REPORT PREPARED BY:

PROJECT SPECIFIC DESIGN CRITERIA

Wind Design Data

Wind Design Speed, Vu = 110 MPH, Vasd = 85 MPH Wind Exposure = B Wind Importance Factor. Iw = 1.0Internal Pressure Coefficient = +/-0.18Ktz = 1.90 Ktz = 0.85

Seismic Design Data

Importance factor = 1.0Ss = 1.51g, S1 = 0.52gSite Class = DSDS = 1.01g, SD1 = 0.52gSDC = DDesign Base Shear = 37.49 kips Cs = 0.155R = 6.5Analysis procedure: ASCE 11.4, 11.5 & 12.8

Snow Loads

Flat-roof snow load, pf = 25.0 psf Snow exposure factor, Ce = 1.00Snow load important factor, ls = 1.00Thermal factor, Ct = 1.00

Gravity Loads*

Roof Dead Load = 15 psfRoof Live Load = 25 psfFloor Live Load (Office) = 50 psfFloor Live Load (Residential) = 40 psf, Balcony = 60 psfFloor live Load (Corridor) = 100 psf Partition Loads = 10 psf (residential) Partition Loads = 20 psf (office) Floor Dead Loads = 12 psf (residential) At rest earth pressure = 60 pcf*As Applicable

WOOD CONSTRUCTION (CARPENTRY)

REFERENCE STANDARD: WOOD FRAMING SHALL CONFIRM TO THE REQUIREMENTS OF THE FOLLOWINF STANDARDS: NFPA - NATIONAL DESIGN FOR WOOD CONSTRUCTION ANSI/TPI - NATIONAL DESIGN STANDARD FOR METAL PLATE CONNECTED WOOD TRUSS CONSTRUCTION.

MATERIAI

	SAWN LUM	BER	
USE	SIZE	SPECIES/GRADE	MIN. DESIGN VALUE
STUD	2 X 4, 2 X 6, 3 X 4, 3 X 6	HEM-FIR (N)	Fb = 775 psi Fc = 925 psi
Sill Plate	2 X 4, 2 X 6, 3 X 4, 3 X 6	HEM-FIR (N)	Fb = 775 psi Fc = 925 psi
Post / Columns	4 x	DOUG-FIR #1	Fc = 1350 psi
Post / Column	6 x	DOUG-FIR #1	Fc = 1000 psi
JOISTS	2 X 8 TO 2 X 12	HEM-FIR (N) #2	Fb = 850 psi Fv= 95 psi
Beam & Headers	4 x 6 To 4 x 12	HEM-FIR (N) #1	Fb = 850 psi Fv= 95 psi
Glue-Laminated	Beams (GLB)	Top Fiber	Btm Fiber stres
24F-V4		1200 psi	2400 psi

241-74

24F-V8

Parallam Beams (PSL) - 2.0E

Wall structural panels - Refer to Table 1 for thickness. 32/16 index rating - 5 ply with Exposure I glue. REPLACE SPLIT MEMBERS AND PRE-DRILL HOLES WHERE NAILING MAY CAUSE WOOD

TO SPLIT. METAL FRAMING CLIPS. HANGERS. ETC. SHALL BE SIMPSON STRONG TIE. NAILING SHALL BE IN ACCORDANCE WITH THE MANUFACTURER'S INSTRUCTIONS WITH A NAIL PROVIDED FOR EACH PUNCHED HOLE. WHERE NAILS ARE TO BE FURNISHED BY THE MANUFACTURER, THEY SHALL BE USED IN PLACE OF COMMON NAILS. BOLTS IN NOT PRESSURE TREATED LUMBER SHALL BE UNFINISHED MACHINE BOLTS OF SIZES SHOWN ON DRAWINGS, CONFORMING TO ASTM A307. LENGTH OF BOLTS SHALL NOT PROJECT LESS THAN 1/16" OR MORE THAN 1/2" BEYOND THE END OF NUT.

2400 psi

BOLT HOLES IN WOOD SHALL BE 1/32" MIN. 1/16" MAX. LARGER THAN THE BOLT DIAMETER. PROVIDE STANDARD CUT OR MALLEABLE IRON WASHER UNDER BOLT HEAD AND NUT WHERE THEY WOULD BEAR ON WOOD. NUTS SHALL BE TIGHTENED WHEN PLACED AND RETIGHTENED BEFORE CONCEALMENT. WOOD BELOW MAIN BUILDING PANELS SHALL BE DOUGLAS FIR FOR SUPPORTING BEAMS,

AND PRESSURE TREATED.

STRUCTURAL MEMBERS SHALL NOT BE NOTCHED, CUT OR OTHERWISE ALTERED FOR DUCTS, PIPES, ECT. WITHOUT THE PRIOR APPROVAL OF THE STRUCTURAL ENGINEER. ROOF TRUSSES SHALL NOT HAVE AREA BETWEEN WEB MEMBERS LARGER THAN 42" HIGH X 24" WIDE UNLESS SPECIFICALLY NOTED ON PLANS.

PRESSURE TREATING:

ALL LUMBER IN CONTACT WITH CONCRETE SHALL BE PRESSURE TREATED WITH 0.25 POUNDS PWE CUBIC FOOT OF WATERBORNE (ACZA) PRESERVATIVES IN ACCORDANCE WITH AWPA PRESSURE- TREATMENT RETENTIONS FOR WESTERN SPECIES ONLY AND THE CORRESPONDING AWPB QUALITY ASSURANCE PROCEDURE ASSOCIATED WITH THE AWPA STANDARD. PRODUCTS SHALL BEAR THE AWPB MARK. BOLTS, NAILS & SCREWS USED IN EXTERIOR APPLICATIONS, OR IN PRESSURE TREATED MATERIAL SHALL BE HOT-DIPPED GALVANIZED (PER ASTM A153) OR STAINLESS STEEL . HOLD DOWN DEVICES COATED WITH CORROSION PROTECTION PER ASTM A123.

Seismic System = K. Light frame walls with shear panels - wood structural panels/sheet steel panels

Fc (Compression)

2900 psi 2900 psi 2900 psi** **WHERE PSL COLUMNS ARE REQ'D PER PLAN. USE ONLY PSL BEAMS WITH (E=2.0 X 10⁶) - 2.0E

2400 psi

Roof Sheathing $-\frac{13}{22}$ inch DOC PS-1 or PS-2 (APA Performance rated) 32/16 span rating with Exposure I glue. Sub-Floor Sheathing - $\frac{3}{4}$ inch DOC PS-1 or PS-2 (APA Performance rated) Sturd-I-Floor 24-in o/c rating with Exposure I glue.

ENGINEERED WOOD CONSTRUCTION REQUIREMENTS

2303.1.1 Lumber. Lumber used for load-supporting purposes,

including end-jointed or edge-glued lumber, machine stress-rated or machine evaluated lumber, shall be identified by the grade mark of a lumber grading or inspection agency that has been approved by an accreditation body that complies with DOC PS 20 or equivalent. Grading practices

and identification shall comply with rules published by an agency approved in accordance with the procedures of DOCPS 20 or equivalent procedures. In lieu of a grade mark on the material, a certificate of inspection as to species and grade issued by a lumber-grading or inspection agency meeting the requirements of this section is permitted to be accepted for precut, remanufactured or rough-sawn lumber, and for sizes larger than 3 inches (76 mm) nominal thickness.

Approved end-jointed lumber is permitted to be used interchangeably with solid-sawn members of the same species

and grade.

2303.1.2 Prefabricated wood I-joists. Structural capacities and design provisions for prefabricated wood I-joists shall be established and monitored in accordance with ASTM D 5055.

2303.1.3 Structural glued-laminated timber. Glued-laminated timbers shall be manufactured and identified as required in AITC A190.1 and ASTM D 3737.

2303.1.4 Wood structural panels. Wood structural panels. when used structurally (including those used for siding, roof and wall sheathing, subflooring, diaphragms and built-up members), shall conform to the requirements for their type in DOC PS 1 or PS 2. Each panel or member shall be identified

for grade and glue type by the trademarks of an approved testing and grading agency. Wood structural panel components shall be designed and fabricated in accordance with the applicable standards listed in Section 2306.1 and identified by the trademarks of an approved testing and inspection

agency indicating conformance with the applicable standard. In addition, wood structural panels when permanently

exposed in outdoor applications shall be of exterior type, except that wood structural panel roof sheathing exposed to the outdoors on the underside is permitted to be interior

type bonded with exterior glue, Exposure 1

STRUCTURAL TESTS AND INSPECTIONS (Where applicable)

CONCRETE SPECIMEN TESTING AND PLACING OF **REINFORCED CONCRETE PER IBC SECTION 1704.4**

2. STEEL REINFORCEMENT PLACING PER IBC TABLE 1704.4.

3. STRUCTURAL STEEL WELDING AND BOLT PLACEMENT PER IBC 1704.3.3, STRUCTURAL WELDING PER IBC 1704.3.1. ALL WELDING, SHOP OR FIELD SHALL BE PERFORMED BY WABO CERTIFIED WELDERS

4. MASONRY CONSTRUCTION SHALL BE INSPECTED & EVALUATED IN ACCORDANCE OF SECTION 1704.5.2 AND PER MASONRY NOTES ON THESE DRAWINGS (WHERE APPLICABLE).







COLUMN SCHEDULE				
COLUMN MARK	TYPE			
COL C 1 COL C 2 COL C 3 COL C 4 COL C 5 COL C 6 COL C 7 COL C 8	4 x 4 DF No 2 4 x 4 DF No 2** 4 x 6 DF No 1 4 x 6 DF No 1 & btr 4 x 6 DF No 2 4 x 6 DF No 2 4 x 6 DF No 2** 6 x 6 DF No 2 6 x 6 DF No 1			

- REFER TO SHEAR WALL PLANS FOR HOLD-DOWN LOCATIONS
- THE FOUNDATION PLAN SHOWN ON THIS SHEET PROVIDES THE FOOTING SIZES AND DIMENSIONS, ALONG WITH THE STRUCTURAL DETAILS. REFER TO THE ARCHITECTURAL DWGS FOR OVERALL DIMENSIONS (WHICH IS THE BASIS OF THE DESIGN).







				HANGER SCHEDULE				_	
0020101		HANGER	IYPE	METHOD	LOAD	D	SUPTED BM	ID	SUPTING
COLUMN MARK	TYPE	H 1	HUCQ612	Inverted	11862	3	5.25 x 16.00	43	5.25 x 11.
001.04		H 2	HU46	Bm to Bm	1752	34	4.00 x 6.00	35	4.00 x 6.
COLUT	4 X 4 DF NO 2	H 3	PER TRUSS MANUF	Bm to Bm	4182	39	GIRDER TRUSS	10	5.25 x 11.
COL C 2	4 x 4 DF No 2**	H 4	PER TRUSS MANUF	Bm to Bm	4182	39	GIRDER TRUSS	8	4.00 x 6.
COL C 3	4 x 6 DF No 1	H 5	PER TRUSS MANUF	Bm to Bm	4540	40	GIRDER TRUSS	10	5.25 x 11.8
COL C 4	4 x 6 DF No 1 & btr	H 6	NONE SPECIFIED	Bm to Bm	3834	41	GIRDER TRUSS	10	5.25 x 11.
	4 x 6 DF No 2	Η7	PER TRUSS MANUF	Bm to Bm	536	42	GIRDER TRUSS	10	5.25 x 11.
	4 x 6 DE No 2**	H 8	PER TRUSS MANUF	Bm to Bm	11349	43	5.25 x 11.25	3	5.25 x 16.
		Н 9	HU412	Bm to Bm	2247	43	5.25 x 11.25	11	4.00 x 12.
COL C 7	6 x 6 DF No 2 6 x 6 DF No 1	H 10	PER TRUSS MANUF	Bm to Bm	10792	46	GIRDER TRUSS	47	5.25 x 14.0





2. 3" COVER REQUIRED FOR ALL REINFORCEMENT.

CUSTOM DESIGN CUSTOM DESIGN	STRUCTURAL ANALYSIS & DESIGN WWW.CDENGR.COM MUKILTEO WA (425) 343-7517 email: mail@cdengr.com			
SFR - 8720 SE 52ND PL	8720 SE 52ND PL MERCER ISLAND WA			
PROJECT NAME:	PROJECT ADDRESS:			
DWG TITLE STRUCTURAL DETAILS	Number: Revision Date CURRENT VERSION 4-15- 201			
PROJECT # T2-2092 SHEET NO				
S-	3.3			