ABBREVIATIONS

AB ABV	ANCHOR BOLT ABOVE
	ADDITIONAL
AFF	ABOVE FINISH FLOOR
AGG ALT	AGGREGATE ALTERNATE
ALUM AOR	ALUMINUM ARCHITECT OF RECORD
APPOX ASD	APPROXIMATE
& OR #	AND
L @	ANGLE AT
BEL	BELOW
BLDG BLK	BUILDING BLOCK
BLKG BM	BLOCKING
BTM	BOTTOM
B/W	BETWEEN
с	AMERICAN STANDARD CHANNEL
CAM CALC(S)	CAMBER CALCULATION(S)
CANT	CANTILEVER
CBC	CALIFORNIA BUILDING CODE
CIP	CAST IN PLACE
CJ CL	CONSTRUCTION/CONTROL JOINT CENTERLINE
CLR CMU	CLEAR/CLEARANCE CONCRETE MASONRY UNIT
CO	COMPANY
COMP	COMPRESSION
CONC	CONTINUOUS
CP CTR	COMPLETE PENETRATION CENTER
d	PENNY
	DOUBLE
DEPT	DETAIL
DF DF-L	DOUGLAS FIR DOUGLAS FIR-LARCH
DIA OR Ć DIAG)DIAMETER DIAGONAL
DIAPH DIM	DIAPHRAGM DIMENSION
DIR	DIRECTION
DL	DEAD LOAD
DPR	RECORD
DWG	DRAWING
(E) EA	EXISTING EACH
EJ FLFV	EXPANSION JOINT
EN	EDGE NAILING
ENG	ENGINEER
eq Equip	EQUAL EQUIPMENT
EQUIV ES	EQUIVALENT EVALUATION SERVICES
ESR FTC	EVALUATION SERVICES REPORT
EW	EACH WAY
EXIST	EXTERNAL
Fb	ALLOWABLE BENDING STRESS
Fc STRENG1	CONCRETE COMPRESSIVE
FDN FF	FOUNDATION FINISH FLOOR
FLR FN	FLOOR FIELD NAILING
F'm STRENGT	MASONRY COMPRESSIVE
FRMG	FRAMING
FTG	FOOTING
Fy Fu	VEILD STRESS ULTIMATE STRESS
GA	GAUGE/GAGE
GALV GB	GALVANIZED GRADE BEAM
НD	HOLDOWN
HDR	HEADER
HGR	HANGER
HORIZ HS	HORIZONTAL HIGH STRENGTH
HSS HT	HOLLOW STRUCTURAL STEEL HEIGHT
I	MOMENT OF INERTIA
ID IN	INSIDE DIAMETER
INCL	INCLUDE(D)
INFO INSP	INFORMATION INSPECTION
INT	INTERVAL
JST	JOIST
KIP OR K KSF	KIPS KIPS PER SOLIARE FOOT
KSI	KIPS PER SQUARE INCH
LAB	LABORATORY
LBS OR # LL	POUNDS LIVE LOAD
LLr LRFD	ROOF LIVE LOAD LOAD AND RESISTANCE FACTOR
DESIGN LSL	LAMINATED STRAND LUMBER
1.1/1	LAMINATED VENEER LUMBER

IAS	MASONRY
IAX IB	MAXIMUM MACHINE BOLT
IC IECH	MISCELLANEOUS CHANNEL MECHANICAI
IEZZ	MEZZANINE
IIN	MINIMUM
IISC IULT	MISCELLANEOUS MULTIPLE
1)	NEW
LG	NORTH NAILING
o OR #	NUMBER
D	OUTSIDE DIAMETER
PNG PP	OPPOSITE
SB	ORIENTED STRAND BOARD
CF	PARALLEL POUNDS PER CUBIC FOOT
CI LF	POUNDS PER CUBIC INCH POUNDS PER LINEAR FOOT
E FRP/	PROFESSIONAL ENGINEER
	PROPERTY LINE OR PLATE
LY P	PARTIAL PENETRATION
refab Roj	PREFABRICATED PROJECT
ROP SF	PROPERTY POUNDS PER SQUARE FOOT
SI VC	POUNDS PER SQUARE INCH POLYVINYL CHLORIDE
	POUNDS
FTR	RAFTER ROOF DRAIN
	REFERENCE
EINF'G	REINFORCING
eq'd ev	REQUIRED REVISION
F	ROOF
CHED	AMERICAN STANDARD SHAPE SCHEDULE
EP HT	SEPARATION SHEET
HTG	SHEATHING
MS	SHEET METAL SCREW
PECS	SPECIFICATIONS
2 S	SQUARE SELECT STRUCTURE OR STAINLESS STEEL
SW TND	STEEL STRONGWALL STANDARD
TL TRUC	STEEL STRUCTURE OR STRUCTURAL
W YM	STRONGWALL SYMMETRIC
OP & BT	TM TOP AND BOTTOM
&G FMP	TONGUE AND GROOVE TEMPERATURE OR TEMPORARY
HRU	THROUGH
L N	TOE NAIL
OC OB	TOP OF BEAM TOP OF CONCRETE
OL OS	TOP OF LEDGER TOP OF SLAB
OW YP	TOP OF WALL TYPICAL
NO	UNLESS NOTED OTHERWISE
Т	ULTRASONIC TESTING
ERT	VERTICAL
 /	WIDE FLANGE WITH
//O /P	
	STRUCTURAL TEE CUT FROM WIDE
/	W SHAPES
1	S SHAPES M SHAPES
Р	HP SHAPES STANDARD CHANNEL
IC	MISCELLANEOUS CHANNEL ANGLE
/T, MT, SS	ST STRUCTURAL TEES HOLLOW STRUCTURAL SECTION
USTITI IT	IONS
WS	AMERICAN WELDING SOCIETY
CI ISC	AMERICAN CONCRETE INSTITUTE AMERICAN INSTITUTE OF STFFI
ONSTRU ISI	AMERICAN IRON AND STEFT
ISITUTE	
ONSTRU NSI	AMERICAN NATIONAL STANDARDS
ISTITUT PA	AMERICAN PLYWOOD
SSOCIA STM	TION AMERICAN SOCIETY FOR TESTING
ND MA WPB	
UREAU C	INTERNATIONAL CODE

POST-TENSIONED CONCRETE

CRSI CONCRETE REINFORCING STEEL

SJI STEEL JOIST INSTITUTE

INSTITUTE

INSTITUTE

GENERAL NOTES:

1.	Do not scale drawings. Contractor shall use foundation and other elements. If dimensio
2.	The General Contractor shall verify all dimer specifications before starting work. The EOF
3.	with the work Dimensions shall take precedence over scale
4.	minimum requirements to be used when con Specific notes and details on drawings shall t
	Where no details are shown, construction sh conflict between requirements shown on the
5. 6.	Typical details and notes shall apply, unless s All materials and workmanship shall conform
	the California Building Code and any other re the work, including the State of California, D
	listed in these notes and specifications. Whe
7.	The Contractor shall have a copy of the Calif
8.	The contracted structural drawings and specindicate the method of construction. The co
	structure during construction. Such measure
0	inspection of the above items, nor insinuate
9.	reinforcing steel or concrete.
10.	of the structure until the structure itself is co
	of the structure. All envelope framing conne secondary framing.
11.	The structure has been designed only for the loads or discrepancies shall be brought to the
12.	Construction materials shall be spread out if design live load per square foot. Provide add
13.	attained design strength. Where reference is made to various test star
14.	edition and/or addendum. Contractor shall investigate site during cleari
	structures such as cesspools, cisterns, found immediately.
15.	Contractor shall:
	utilities from damage,
	 Comply with all laws and regulations reaconstruction,
	c. Bear all expense of repair or replacement
16.	All trade names called on drawings may be s submitted to the EOR and written approval s
17. 18.	See architectural drawings for roof openings Where design and details of trusses, etc., are
	calculations and drawings prepared and cert Structural Engineer to the EOR and to the Bu
19.	The Contractor will hold harmless, indemnify officers, employees and agents from any and
	owner, the engineer, his consultants, their o
20.	Unless otherwise noted, anchor bolts are to A-36 steel, by an American manufacturer. Fi
	hot dipped zinc galvanized per CBC 2304.9.5 ASTM A123 for Connectors
	ASTM A153 for Fasteners
21.	ASTM B695 for mechanical galvanizing The Contractor shall take steps necessary to
	installation of all structural and finish materi structure to determine final position of the c
22.	Observation visits to the project site by field
	services performed by DPR's during any pha- and detailed inspection services (as required
	others. The support services, whether of ma assisting in quality control and in achieving c
23	Contractor's performance and shall not be contracted on existing conditions shown
20.	available, but without guarantee of accuracy
	conditions and information shown on drawin
24.	The Contractor shall immediately notify DPR
25.	All work shall conform to the best practice p
26.	Provide openings and supports as required p
	equipment vents, ducts, piping, etc. Should system, notify the EOR immediately. All med
27.	Refer to architectural and other consultant c
	discrepancy between these drawings shall be construction.
28. 29.	Drawings (notes, schedules, details and plan Contractor shall have a copy of project soils/
30. 31	ASTM designation and all standards refer to Modifications of these notes details plans a
32.	Products specified with these plans may req
	with ordering. Any desired substitutions are
-	be made to assist the Contractor to facilitate
33.	Unly " Approved " structural working drawing used for construction on this project. All oth
	site, nor shall they be used for any construct solely responsible for all work not performed

PERMITS

1. Contractor shall obtain a permit from the local Building Department prior to any construction. 2. A plan review shall be made by a qualified representative of the Building Department prior to the issuance of a building permit. Once the building permit has been issued, no revisions or deviations shall be made without written approval. Contractor shall correct any code or legal violations which might be pointed out by the Building Inspector. 3. Separate permits may be required for electrical, plumbing, and mechanical plans.

PROJECT COORDINATION

- construction:
- b. Footing reinforcing bars in place and anchor bolts in place, but concrete not yet placed,
- c. Concrete placing operations, d. Wood framing completed by not closed in,
- e. Plywood nailing completed but not covered,
- f. Shop welding operations,
- g. High-strength bolting operations,
- h. All structural work completed.

e dimensions on architectural plans to lay out the walls, onal discrepancies occur, the AOR must be consulted. nsions, site conditions, and project drawings and R shall be notified of any discrepancies before proceeding

- es shown on drawings. Typical details and general notes are nditions are not shown otherwise. take precedence over general notes and typical details.
- hall conform to similar work on project. Whenever there is a ne drawings, the more stringent requirement shall govern. shown otherwise on the plans. m to the minimum standards of the latest adopted edition of
- regulatory agencies which have authority over any portion of Division of Industrial Safety and those codes and standards nenever there is a conflict between codes, the more stringent fornia Building Code, edition as noted on plans, on the job
- cifications represent the finished structure. They do not ontractor shall provide all measures necessary to protect the res shall include, but not be limited to, bracing, shoring for Observation visits to the site by the EOR shall not include e acceptance.
- rove all grading and excavations prior to placement of forms, uate braces and connections to support the component parts omplete enough to adequately support the component parts ections shall be in place prior to loading or placing of
- ne loads within the accompanying calculations. Any additional e EOR's attention f placed on framed floors or roof. Load shall not exceed the lequate shoring and/or bracing where structure has not
- andards for materials, such standards shall be the latest ring and earth work operation for filled excavations or buried dations, etc. If any such structures are found, notify the EOR
- not shown on the construction documents, and protect those
- egarding protection of the public and the workers during
- ent relative to the prosecution of this work. substituted for another equal. Documentation shall be shall be provided by the EOR prior to installation. s, depressions, etc. not shown on the structural drawings.
- re to be provided by fabricator, Contractor shall submit tified by a certified be a Registered Professional Engineer or uilding Department for review prior to fabrication. fy, and defend the owner, engineer, his consultants, their nd all liability claims, losses or damage arising or alleged to
- cribed herein, but not included the sole negligence of the officers, employees, and agents. be full diameter cut thread bolts, made from Grade F-1554
- Fasteners for pressure (preservative) treated wood shall be
- o ensure proper alignment of the structure after the rials. This shall include any necessary pre-loading of the completed work.
- representative of the DPR's shall not include inspections of tion procedures, techniques or methods. Any support ase of construction shall be distinguished from continuous by any regulating governmental agency) provided by
- aterial or work, are performed solely for the purpose of conformance with contract documents, but do not guarantee construed as supervision of construction. n on drawings are based on best present knowledge The Contractor shall verify and be responsible for all hall notify the DPR's of any discrepancies between actual site
- ings or in the contract documents before proceeding with R's of any condition that, in his opinion, might endanger the f the structure. prevailing in the various trades comprising work. The
- ating the work of all trades per typical details and notes for mechanical and electrical those openings mentioned compromise any structural
- echanical and electrical equipment shall be properly braced drawings to coordinate with structural drawings. Any
- be referred to the DPR's for clarification before start of
- ns) shall have precedence over structural calculations. s/geotechnical/foundation investigation on the job site.
- o the latest amendments. and specifications shall only be provided by the EOR. quire special ordering or excessive lead time from the r the accessibility or products nor the lead times associated e to be brought to the attention of the EOR. A lack of ute an "emergency" on the part of the EOR. All efforts will
- any requested substitution. ngs (and other construction documents) are permitted to be her drawings are obsolete and are not permitted on the job tion purposes. Contractors using unapproved drawings are ed in accordance with the " **Approved**" drawings.

- 1. The Contractor shall submit a schedule of construction showing planned sequences and timing of all work. 2. The Contractor shall inform the DPR's twenty-four (24) hours prior to reaching the following stages of
- a. Footing excavations completed and ready for placing of reinforcing,

FOUNDATION NOTES

1. Foundation is designed base on the Soils Report prepared by:

- GSI Soils, Ind 141 Surburban Road - Suite D-1
- San Luis Obispo, CA Update Letter - 98-138, Dated 11/23/09
- Calculations where based on a maximum soil bearing pressure of **2000** psf (D + L + L_R).
- Contractor shall conform with all foundation requirements of Soils Report referenced in Item #1 above. 4. Allowable values and foundation design are based upon assumed uniform soil conditions shown by test borings. Actual soil conditions which deviate appreciably from that shown in the test borings, or will require construction appreciably different from that shown on the drawings, shall be reports to the DPR's and the Soils Engineer of Record
- 5. Contractor shall conform to all required, and recommended, excavation and grading preparation
- requirements of Soils Report referenced in Item #1 above. 6. Contractor shall have a copy of the referenced Soils Report, noted above, at the job site during construction. 7. All required fill and backfill shall be compacted to at least 90% of the maximum density, as determined by
- ASTM D-1557-02 (jetting of soils to obtain compaction is prohibited). 8. All pumping soils shall be removed and replaced, or stabilized with gravel or geotextile fabric as directed by the Soils Engineer, regardless of compaction test results. 9. Soils Engineer shall certify to the Building Department, in writing, prior to placing concrete, reinforcing,
- and/or forms, that foundation earthwork has been completed in accordance with the recommendations shown in the Soils Report. 10. Prior to placing concrete, the foundation excavation shall be inspected by the Building Department, Building
- Inspector. 11. Continuous exterior footings shall extend to at least 24" (Min) below the lowest adjacent exterior grade, and interior footings shall extend to at least **24**" (Min) below the lowest adjacent grade. Refer to foundation details for more exact footing depths.
- 12. Isolated footings shall extend at least 24" (Min) below the lowest adjacent grade. 13. All sleeves below footings must be in place prior to placing concrete for footings.
- 14. Unless otherwise noted by the referenced Soils Report, where concrete slabs on grade are to be constructed, the slabs should be underlain by a minimum of 6" of clean free draining material such as clean river run gravel or permeable aggregate complying with Caltrans Standard Specifications 2006, Section 68, Class I, Type A or Type B, to serve as a cushion and a capillary break. A 10-mil vapor barrier membrane should be placed between the cushion and the slab to provide an effective barrier and to minimize moisture condensation under the floor covering. All seams through the vapor barrier should be overlapped and sealed. Where pipes extend through the vapor barrier, the barrier should be sealed to the pipes. It is suggested that a 2" thick sand layer be placed on top of the membrane to assist in the curing of the concrete. The sand should be
- lightly moistened prior to placing concrete. 15. Provide interior slab control joints, as per details on drawings, for any slab having a width/depth greater than 25'-0" or greater. Slab control joints shall be located as noted on the drawings. 16. See electrical drawings for underground work and details.
- 17. All electrical and plumbing locations must be verified with the owner, or his agent, prior to placing the
- concrete slab. 18. No wood of steel stakes shall be left or abandoned in footings after concrete has set. Where stakes form
- voids, voids shall be filled with non shrink grout. All reinforcing steel shall clear stakes by 2" minimum. 19. All embedment hardware such as, but not limited to, holdown bolts, straps, and post bases shall be in-place and tied, prior to placing concrete and inspections
- 20. Holes in sill plates or ledgers for anchor bolts shall be the bolt shank diameter +1/16". No oversizing is allowed other than noted here. If holes of greater size exist, contractor to fill the spaced around the anchor bolt with a quick setting, shrinkage resistant, dry packing product.
- 21. Retaining wall, footing, backfilling, and drainage notes: a. Width of all retaining wall footings to be inspected after exaction and prior to placement of concrete, b. Keys shall be free and clean prior to placing concrete for footings, c. Provide 4" diameter weep holes at 10'-0"o.c. maximum, or provide "French Drain",
- d. Provide 1 (one) square foot of continuous rock pocket behind week holes or "French Drain",
- e. Do not backfill or apply any load to the wall until 10 days (Min) after concrete has been placed. 22. Unless otherwise noted, anchor bolts are to be full diameter cut thread bolts, made from F-1554 Grade A-36
- steel, by an American manufacturer. Fasteners for pressure (preservative) treated wood shall be per Item #20, under GENERAL REQUIREMENTS. 23. De-water footings as required to maintain dry working conditions.
- 24. Footings shall be poured in neat excavations, without side forms whenever possible. The sides and bottoms, which are to have concrete contact, must be moistened several times just prior to pouring against them.

REINFORCING STEEL

- 1. All reinforcing steel (rebar) shall be new stock, deformed bars, conforming to ASTM A-615 as follows (unless otherwise noted): #4 bars and smaller Grade 40
- #5 bars and larger Grade 60 2. All rebar shall be free of loose and flaky rust and scale, grease or other materials which might affect or impair
- 3. Placing of rebar shall be in accordance with Section 1907 of the California Building Code, latest adopted
- 4. All rebar shall be securely tied and braced in place prior to Building Department's inspection, Structural
- Observation (if required), and placing of concrete or masonry. 5. Concrete cover over rebar shall be as follows
- a. Concrete placed against earth 3" Clear b. Concrete placed in forms but exposed to earth 2" Clear c. Main bars of columns and beams 2" Clear 1" Clear d. Structural slab
- e. Concrete at exterior face of walls and columns 1 1/2" Clear
- f. Concrete at interior face of walls and columns 1" Clear
 - At Center of Slab, UNO
- g. Slabs on grade
- 6. Rebar marked CONT shall be spliced with a minimum of 40 bar diameters in masonry and 48 bar diameters in 7. When adjacent splices in grouted masonry are separated by 3" or less, the lap length shall be increased by 1.3
- times, or the splice may be staggered at least 24 bar diameters with no increase in lap length. 8. If dowels are required, provide rebar of the same size and spacing as the most stringent reinforcing, and lap
- as noted above in Item #6. 9. All bends shall be made cold.
- 10. Do not weld rebar unless special approval has been granted by the EOR. Weldable rebar shall conform to ASTM A-706 standards .
- 11. Use Simpson 'SET-XP' Epoxy at all rebar to existing concrete, per ICC-ES ESR-2508. 12. Caisson rebar cages shall be held firmly in place and plumb.
- 13. Spiral rebar to have 1 ½ extra turns at each spiral unit end and shall have lap splices of 48 bar diameters within its length. The maximum pitch is to be 3" UNO.
- 14. Closed ties, or stirrups, shall be formed in one piece by overlapping standard stirrup (or tie) end hooks around a longitudinal bar, or formed in one or two pieces lap spliced with a Class B splice (lap of 1.3 development length: 1.3ld).
- 15. Stagger splices in rebar, UNO.
- 16. Fabrication, erection and placement of rebar shall conform to CRSI Manual of Standard Practice. 17. Rebar larger than #8 bars are not permitted UNO or specifically detailed.
- 18. Minimum lap lengths for all rebar at splices shall be (splices to be staggered)
- CONCRETE #3, #4, #5, #6....
- MASONRY
- #3. #4... #5. #6...
- #7, #8....

19. The minimum radius of bend for rebar (measured on the inside of the bar) shall be as follows:

- 1 1⁄4" ... 1 ½'
- 20. All anchor bolts used in concrete construction shall have a minimum total embedment as follows, UNO:
- [™] Diameter or smaller...... 7" ¾" Diameter.....
- %" Diameter.....
- 1" Diameter.....
- 21. Location of all construction joints, other than those specified, shall be approved by DPR's prior to placing of concrete. Construction joints shall be thoroughly air and water cleaned and heavily roughened so as to expose coarse aggregates. All surfaces to receive concrete shall be maintained continuously wet at least three hours in advance of placing.
- 22. All rebar, anchor bolts, dowels, inserts, and any other hardware to be set in concrete shall be well secured in
- position prior to Building Department's inspection and placing of concrete. 23. DPR's and Inspector's shall be notified 48 hours in advance of placing any concrete for reinforcing inspection.

CONCRETE

- a) Continuous footing b) Footing pads c) Slab on grade d) Gradebeams e) Caissons f) Tilt-up panels
- for light-weight concrete. footings. per cubic yard. admixtures to DPR's for review)
- inspections

- adjacent to all sides as well as top and bottom (unless at foundation). Reinforcing bars shall extend a minimum of 24" past edge of opening. 28. Testing: a. Laboratory: The owner shall retaing and pay for the services of a Testing laboratory where samples will be tested in accordance with these structural notes and the applicable standards of the ASTM. Work under this division (to be performed by the contractor) includes the taking and storage of samples and their delivery to the laboratory.

investigation

concrete.

excavation.

anchors.

1. All concrete, and concrete work, shall be in accordance with the latest edition of the ACI Building Code (ACI 318), and the ACI Manual of Concrete Practice. Strength design used for all concrete grades. 2. Concrete strength shall be as follows:

- 28-Day Strength (Min) Location NOTE: SPECIAL INSPECTION IS NOT REQUIRED FOR CONCRETE COMPRESSIVE STRENGTH **3000** p ALL CALCULATIONS HAVE ASSUMED f'c : 2500psi, AND PER CBC SECTION 1704.4 SPECIAL INSPECTION IS NOT REQUIRED **N/A** psi ~~~~~~ All cement shall conform to ASTM C-150, Type I or II. (Fly ash complying with ASTM C618, Class F, may be used to replace cement as required to minimize alkali-silica reaction (ASR). 15% fly ash replacement may be used if the fly ash has less than 2% CaO, or 30% fly ash replacement may be used if the CaO content is less than 10% and the total alkali content is less than 3%) 4. Water to be potable, clean and pure, free of substances deleterious to concrete and reinforcing. This requirement applies to water, used in mix, as well as to water for aggregate washing and for curing.
- Fine and coarse aggregate shall conform to ASTM C-33 for standard weight concrete and ASTM C-330 6. All aggregate shall be from a State approved stockpile source. The shrinkage shall be as per ASTM C-157 with the average drying shrinkage (28 days of drying) not exceeding 0.045%. Maximum size of aggregate should be 1". 1 ½" aggregate may be used in continuous footings or pad
- 8. Mix designs shall be prepared by an approved testing laboratory, signed by a Registered Professional Engineer, and shall be submitted to the EOR for approval. Minimum cement content shall be 5 ¼ sacks
- 9. Ready-mixed concrete to meet requirements of ASTM C-94. 10. Admixtures and curing compounds to be as follows: (Contractor shall submit request for use of
- a. Water reducing admixture: Pozzolith[®] 300R at the rate of 5 oz. per sack, Grace WRDA-79 at the rate of 8 oz. per sack, or Grade WRDA-64 at the rate of 5 oz. per sack. With the acceptance of the EOR, Pozzolith 3000N or 322N at the rate of 5 oz. per sack may be used.
- b. At slabs and other horizontal concrete surfaces: White pigmented liquid membrane, all resin, water based curing compound, conforming to ASTM C-309, Type 2, Class B. Burke Aqua Resin Cure, W.R. Meadows Sealtight 1200, or acceptable equivalent.
- c. At vertical surfaces, including formed surface where forms are removed prior to the end of the curing period: Clear liquid membrane, all resin, water based curing compound, conforming to ASTM C-309, Type 1, Class B. - W.R. Meadows Sealtight 1100, or acceptable equivalent. 11. Anchor bolts, dowels, inserts, etc., shall be securely tied in place prior to placing concrete and
- 12. Concrete shall be cured by keeping it continuously wet for 10 days, or by an approved curing method. -13. All placing of concrete with f'c (at 28 days) greater than 2500psi and rebar, shall be inspected by a registered deputy inspector at the owner's expense. Testing of concrete with f'c (at 28 days) greater — than 2500psi and rebar shall be done by a licensed testing laboratory.
- 14. Verify all dimensions and conditions at the job site and notity EOR of any discrepancy. 15. Pour footings against undisturbed natural grade. The bottom of all footings shall be cleaned of any loose material, and all rebar shall be firmly tied in position prior to placing concrete and inspections. 16. Maximum concrete slump shall be 3" (±1") for slabs on grade, and 4" (±1") for all other work.
- 17. Construction joints may be preformed keyed control joint form, or equal. 18. Vibrate all concrete (including slabs on grade) as it is placed, with a mechanical vibrator operated by
- experienced personnel. The vibrator shall be used to consolidate the concrete, not transport it. Reinforcing and form shall not be vibrated.
- 19. Remove forms in accordance with the following schedule: a. Side forms of footings: Minimum 2 days.
- b. Edge forms of slab on grade panels: Minimum 1 day.
- c. Walls: Minimum of 10 days. Wall forms may be removed after 4 days if curing is performed as specified for unformed surfaces.
- 20. Unless otherwise noted, anchor bolts are to be full diameter cut thread bolts, made from F-1554 Grade A-36 steel, by an American manufacturer. Fasteners for pressure (preservative) treated wood shall be as noted in Item #20 under GENERAL REQUIREMENTS. 21. For pumping applications: Minimum aggregate size shall be ³/₄" with no more than 20% of the aggregate
- proportion being $\frac{3}{2}$ " in size (50/50) mix. 22. Contractor shall obtain approval from DPR's prior to placing sleeves, pipes, ducts, chases, corings and opening on or through structural concrete beams, walls, floors and roof slabs, unless specifically detailed or noted. All pipes or conduits passing through concrete members shall be sleeved with standard steel
- pipes. See Detail 33/S1.21 for sleeve at foundation. 23. Form work design and removal shall conform to CBC, Section 1906.
- 24. Concrete shall not fall more than six feet. Use tremie, pump, or other approved methods.
- 25. Only one grade of concrete shall be allowed on project site at any time. 26. Unless specifically detailed or noted otherwise, construction and control joints shall be provided in all concrete slabs, and shall be located such that the area within joints does not exceed 400 sq. ft. 27. Every opening (exceeding 24" in either direction) shall have a minimum of (2) #5 rebar located directly
- b. Frequency of Testing: Samples for strength tests of each class of concrete placed each day shall be taken not less than once a day, nor less than once for each 150 cubic yards of concrete, nor less than once for each 5000 sq. ft. of surface area for slabs or walls.
- c. Samples: Make 3 test cylinders for each day's pour.
- d. Testing of Samples: Test each batch of 3 cylinders as follows: 1 at 7 days; and 2 at 28 days. e. Test Reports: A copy of all test reports shall be submitted to the DPR's.

CAISSON/CONCRETE PIER & GRADE BEAM NOTES: N/A

- 1. Excavations for drilled caissons/pier shall be performed in compliance with local grade codes and ordinances, as well as CBC Chapter 18, Chapter 33, and Section 1808 and as recommended by project soils
- 2. Excavation for all drill caissons/piers shall be approved by the project Soils Engineer prior to place of
- 3. Reinforcement for drilled caissons/piers shall be approved by the EOR prior to placing in caisson/pier
- 4. De-water caisson/pier footings and building excavation as required to maintain dry working conditions. 5. Caisson/piers are to be poured by end of day after completion of drilling operation. 6. The Contractor shall be responsible for all shoring, bracing, etc. necessary to support cut and/or fill banks,
- and existing structures during excavation, and the forming and placement of concrete. 7. Bottom of caisson/piers shall be thoroughly cleaned prior to placement of concrete.
- 8. Grade Beam Reinforcement: a. Stagger splices in horizontal reinforcement,
- b. Locate splices between the ¼ and ¼ spans (between caisson/piers) of grade beams. c. See CONCRETE REINFORCING notes for minimum splice lengths.

RETROFITTING ANCHORS. PATCHING AND ADHESIVES (Where approved by EOR prior to installation):

- 1. Non-shrink grout and/or dry-pack: Master Builders 'Master Flow 713'. Mix with the least water required to place grout without voids. 2. Retrofit rebar and/or bolt anchors, screen tubes, adhesives, etc. shall be as manufactured by, and installed in
- accordance with the written recommendations of one of the following: a. Simpson 'SET-XP' epoxy adhesive, install per ICC-ES ESR-2508
- b. Hilt 'HIT-HY 150' epoxy adhesive, install per ICC-ES ESR-2678 3. Installation of retrofit anchors or dowels at existing concrete elements:
- a. Cleaning: Clean all holes thoroughly with air blast then use "bottle" brush to loosen powder, etc. and use air blast a second time before installing anchors. b. Inspection: Provide for inspection of adequate depth and correct diameter of all holes before installing

CONCRETE MASONRY: /1

- 1. The design allowable compressive strength of masonry is taken to be f'm = 1500psi. Special Inspection is required, as noted on the Special Inspections/Structural Observation sheet included with these notes. 2. All inspections are required to satisfy Section 2105 of the CBC shall conform to the 'Unit Strength
- Method' for determining unit compressive strength as described in 2105.2.21.2. 3. Hollow load bearing units shall be Grade "N" Type 1, and **medium weight**, conforming to CBC Table
- 721.3.2, sections 1805.5.2.2, 2103.1, and 2105.2.2.1.2 and ASTM C90. 4. All masonry to be precision concrete masonry units, and shall be manufactured by a member of the
- Concrete Masonry Institute, precise in form and dimension, and conforming to "Standard Specifications for Hollow Load-Bearing Concrete Masonry Units" ASTM C90, Grade "N". Open-end masonry units are acceptable. 5. All construction methodology shall conform to the CBC, Section 2104, Running bond.
- 6. Mortar shall be Type M and shall conform to CBC Section 2103.8 and ASTM C270. Minimum
- compressive strength shall be 2500 psi at 28 days. Mortar proportions shall be 1 (one) part Portland Cement, ½ part hydrated lime, and 3 ½ to 4 ½ parts sand by volume (sand shall conform to ASTM C144). Mortar shall maintain a 2 ½" to 3" slump. 7. Solid grout all cells with or without rebar, UNO. Concrete block masonry units shall be dry at time of grouting operation. When grouting is stopped for more than one hour, keep grout minimum of 1 1/2"
- below the tops of the blocks. Secure all embedded elements firmly in place to prevent motion prior to or during placement of grout. 8. Grout shall conform to ASTM C476 and CBC Section 2103.12 and shall have a minimum strength of 2000psi at 28 days. Grout proportions, for fine grout, shall be 1 part Portland Cement, 2 ½ to 3 parts
- sand by volume, and a maximum of 0.1 part lime (sand shall conform to ASTM C144). Grout shall maintain a 8" to 10" slump. Coarse grout proportions are to be 1 part Portland Cement, 1 to 2 parts pea gravel, 2 ¼ to 3 parts sand and a maximum of 0.1 part lime. 9. Grout shall be pumped, and shall be as fluid as possible, for placing without segregation of the
- constituent parts. Grout shall have no less than 6 sacks of cement in each cubic yard. Submit grout mix design for review by the engineer. Cement shall be Type I or II Portland Cement conforming to ASTM C150.
- 11. Water must be potable, clean, and free of deleterious amounts of acid, alkalies, or organic materials. 12. Admixture of Sika Grout Aid, Type II, may be used in accordance with manufacturer's recommendations. 13. High Lift Grouting:
- 12'-8" maximum height at grout lift. Clean out openings at each vertically reinforcing cell min. and/or at 32"o.c. or solid grouted construction cells are required if high lift grouting is selected. Seal clean out openings after observation by the EOR, and a minimum of two days prior to grouting. Pour grout (slump must be maintained between 10" and 11") in lifts not to exceed four feet in depth per hour. A time interval of approximately one hour shall be allowed between each lift. Vibrate all cells in each lift with the vibrator extending approximately half way into the previous lift. Repeat this pouring operation, waiting period, and vibrating technique until the top is reached. Likewise, re-vibrate the top half of the top lift after the waiting period. Note, no intermediate reinforced bond beams are to be placed between
- the top and the bottom of the pour height. 14. Low Lift Grouting: Block to be grouted shall not exceed 4'-0" in height, and shall be grouted in one continuous operation. All grout shall be vibrated when placed, and a second time approximately one-half hour after placing. Grout shall be held down 1 1/2" at top of each lift to provide key for lift above. Special provisions must be made to keep the bottom and sides of the grout spaces as well as the minimum clear area of 3"x3" clean
- and clear prior to grouting. L5. Consolidation - Consolidate grout at the time of placement.
- a. Grout Pours less than 12" Consolidate by mechanical vibration or by puddling. b. Grout pours exceeding 12" - Consolidate by mechanical vibration, and reconsolidate by mechanical
- vibration after initial water loss and settlement has occurred. 16. All masonry walls in excess of 10'-0" in height shall be braced to withstand a wind load of 10psf, applied perpendicular to wall either direction, during construction. Bracing shall remain in place until the supporting element (roof/floor diaphragm, etc.) is complete enough to support the wall.
- 17. Drypack shall be Master Builders 'Embeco 885' or approved equal. 18. All vertical reinforcing shall be located and anchored using prefabricated bar positioners.
- 19. Unless specifically detailed or noted otherwise, vertical control joints shall be provided in all concrete block walls and spaced at a distance approximately equal to wall height (but not greater than 25'-0"o.c.). Control joints shall extend full height of wall. Control joints shall not be required when wall length does not exceed 1.5 times the wall height.
- 20. Unless otherwise noted, anchor bolts are to be full diameter cut thread bolts made from F-1554 Grade A-36 steel, by an American manufacturer. 21. Requirements for concrete block construction shall conform to the following:
- a. Every opening (exceeding 24" in either direction) shall have a minimum of (2) #5 rebar placed directly above, below (unless at foundation) and adjacent to both sides, UNO. Rebar shall extend a minimum of 24" past edge of opening. b. At the end of all walls, place (2) #5 vertical rebar, UNO.
- c. At the top of all walls, place (2) #5 horizontal rebar, UNO.
- d. Dowel concrete block walls and columns to supporting concrete with bars of the same size and spacing as vertical. See notes for minimum length of splice. e. Bond shall be provided by lapping units in successive vertical course (running bond). Stack bond of
- mechanical anchorage shall not be used unless specifically noted or detailed otherwise. f. At the time of laying, all masonry units shall be free of excessive dust and dirt. g. All rebar shall be in place and secured prior to grouting. Rebar shall be placed and secured in
- conformance with CBC 2104.5. 21. Reinforcing bars larger than #8 bars are not permitted unless specifically detailed or noted otherwise. 22. At all splices in rebar (stagger splices), lap (min) bars as follows:
- #3 16" #6 - 30" #4 - 20" #7 - 35" #5 - 25" #8 - 40"
- 23. The minimum diameter of bends for rebar, other than stirrups and ties, measured on the inside of the bar shall be as follows: #3 - 1 ¾" (Gr. 40) #6 - 4 ½" (Gr. 60)
- #4 2 ½" (Gr. 40) #7 - 5 ¼" (Gr. 60) #5 - 3 ¾" (Gr. 60) #8 - 6" (Gr. 60)
- 24. All anchor bolts used in concrete block construction shall have a minimum total embedment as follows: %" Diameter or Smaller 4 ¾" Diameter
- ‰" Diameter
- 25. Location of all construction/control joints, other than those specified, shall be approved by the DPR's prior to placement.

RETAINING WALL NOTES: N/스

- 1. See project soils investigation (if provided) and specific retaining wall details for additional requirements. Project soils investigation shall take precedence over these notes and specific retaining wall details.
- 2. Before backfilling wall, a granular drainage material (see note #3) shall be placed behind the wall in a continuous 12" (min) wide strip. The drainage material shall extend the full height of the wall up to 12"
- below the top of the higher grade. The upper 12" zone should consist of water conditioned clay soil. 3. Granular drainage material shall consist of gravel or crushed stone, and shall be free of organic material,
- clay, or other deleterious material conforming to Caltrans Standard Section 68 Class I, Type B. 4. Drainage and backfill material shall not be placed until concrete and/or masonry has reached design
- strength. 5. Backfilling and Compaction:
- a. Free Standing Walls Do not backfill wall until 7 days (min) after solid grouting of wall is completed. Backfill materials shall be placed in continuous (for entire length of wall) 12" lifts and compacted with lightweight tampers. Do not frame to wall or place concrete slabs (at top of retention) until 7 days
- (min) after backfilling and compaction operation is complete. b. Top-Restrained Walls (structural concrete slab or wood framed diaphragm at top of wall) - Wall shall be securely shored and braced prior to backfilling and compaction operation is begun. Backfilling and compaction operations may begin after wall has reached design strength and shoring is completed. Backfill material shall be place in continuous (for entire length of wall) 12" lifts and compacted with lightweight tampers. Shoring shall remain in place until backfilling and compaction is completed and concrete slab (at top of wall) has reached design strength, or wood framing is completed and inspected.
- 6. All footings shall be poured against undisturbed ground or approved (by Soils Engineer) fill. 7. Contractor shall notify DPR's if superimposed loading occurs from adjacent existing foundations or other
- structures within a distance equal to the over height of the wall. 8. Maximum uphill slope behind wall (UNO) shall be 1 (vertical) to 5 (horizontal)
- 9. At 4" (min) diameter perforated drain pipe (with perforations placed downward) shall be placed at the top of the footing and completely surrounded by granular drainage material (see note #3). Drain pipe shall have a minimum 2% slope to daylight.
- 10. Before granular drainage material and backfill is placed, the entire backside (retention side) of wall shall be thoroughly waterproofed with 'Mira Drain 6200', 'J-Drain 700', or equal placed to heel of wall. 11. A synthetic permeable fabric shall be installed between and envelope around gravel drainage material
- (see note #2) and backfill material to prevent infiltration of native soils or backfill material into Mirafi 140N fabric, or equal.
- 12. Wall shall have expansion joints at 40'-0"o.c. maximum and/or at all height/grade changes. Expansion joints shall be filled with expandable mastic, or similar to tilt-up wall construction. 13. Contractor shall notify EOR if loading from vehicle and construction surcharges will occur with a distance
- equal to the overall height of the wall.

WATERPROOFING NOTES FOR RETAINING WALLS: N/A

- Provide 4" diameter weep holes 5'-4"o.c. (max). Construct weep hole per Caltrans specification Section 51-31. In lieu of weep holes a 'French Drain' may be installed (See RETAINING WALL NOTES #1, 2, 3, 9, 10, 11 & 12).
- 2. Provide 1 (one) sq. ft. of continuous rock pocket behind weep holes, complying to Caltrans Specification 19-3065. See RETAINING WALL NOTES #10 and #11 for additional information.
- 3. Provide 'ThoroSeal' waterproof coating over concrete or block wall and footing. 4. Apply bituthene sheets over 'Thoroseal' coating or NSE 'Mira Drain 6200', 'J-Drain 700' or equal.

NOTE: APPLY ALL PRODUCTS SPECIFIED HEREIN PER MANUFACTURER'S SPECIFICATIONS



STRUCTURAL STEEL AND WELDING:

- As a minimum, structural steel shall conform to ASTM A-36 specifications, ASTM A-992 specifications, and to the AISC Specifications for fabrication and erection.
- All Hollow Structural Steel (HSS) shall conform to ASTM A-500 Grade B. 3. All structural pipe columns shall be welded seamless pipe, conforming to ASTM A-53 Grade B.
- 4. All bolts shall conform to ASTM A-307 for unfinished bolts, except where specifically noted as high-strength bolts, which shall conform to ASTM A-325.
- 5. All steel exposed to weather shall be painted per latest AISC specifications.
- 6. All structural steel shall be fabricated in the shop of licensed fabricator, and shop drawings shall be submitted to the EOR for approval prior to fabrication. 7. Welding shall be done in an approved fabricating shop by welders qualified, as required by the Building
- Department, conforming to the latest AWS Specifications and Standards. E-70 T6 or E70 TGK2 Electrodes: ASTM A-572 Grade 50 Structural Steel
- 8. The use of rolled steel sections and/or bolts manufactured outside the United States will require verification that the products comply with applicable ASTM Standards. Mill certificates will be required for all steel. Steel grades other than ASTM A-36 or ASTM A-992 will require testing by an approved laboratory. All foreign bolts must be approved by the local Building and Safety Department prior to their use.
- 9. Unless noted otherwise, 3/16" fillet shall be minimum weld (column to base plate or cap plate, U-saddle, plate to web, plate to plate, etc.). 10. All butt welds shall be full penetration welds, unless otherwise detailed on the plans.
- 11. Beam connections shall comply with "Framed Beam Connections" AISC part 9, A-307 machine bolts (MB) 12. No field welding permitted, unless specifically noted otherwise.
- \wedge 13. Shop drawings for the fabrication of any structural steel shall be approved by Contractor and submitted to DPR's for review and then submitted to the Building Division for review and approval prior to fabrication or
- 14. No holes other that those specifically detailed shall be allowed through structural steel members. Burning of holes is not permitted. 15. All headed studs (for concrete anchorage) shall be manufactured by 'Nelson' or approved equal.

- /1 16. Welder qualification requirements, welding procedure and welding electrodes for all structural steel (except structural sheet steel, see steel decking) shall conform to AISC 360. 17. The design, fabrication and erection of structural steel for buildings and structures shall be in accordance
- with AISC 360 and for structural steel structures assigned to Seismic Design Category D, E or F shall be designed and detailed in accordance with AISC 341, Part I.
- 18. Provide hot dip galvanizing or 3" minimum concrete cover around all structural steel below grade. 19. Structural steel embedded into concrete or masonry shall be unpainted.
- 20. Where fillet weld size is not indicated, use AWS minimum size based on the thickness of the thicker part being welding, as specified in AISC Manual of Steel Construction, thirteenth edition.
- 21. Welders shall have current certification and be qualified for the work they will be doing per AWS, Chapter 5, Part C. Technicians who perform MT and UT test shall be ASNT certified. 22. All welding shall comply with AWS D1.1-96. The following Sections shall be given special attention:
- Section 5.3 for qualified welder Section 4.2 for preheat and interpass temperatures,
- Section 4, Parts B, C, and D for ARC welding techniques,
- Section 6 and Section 8, Part D for inspection.
- 23. Welding Procedure Specifications (WPS) shall be submitted to the EOR for review and approval prior to fabrication 24. Removing of backer bars and runoff tabs is required.
- 25. A minimum of 20 ft-lbs CVN (notch toughness) is required for filler metal at -20 » Fahrenheit and 40 ft-lbs
- CVN for 70»Fahrenheit. 26. Minimum preheat and interpass requirements shall meet AWS D1.1-96 Section 3.5 and Table 3.2, a portion of which is shown below.
- 27. All welded and bolted connections shall be in place and completed prior to placing additional framing or
- loading platform areas. 28. Where members of different steel grades are to be connected by welds, the weld consumables used shall meet the minimum yield strength, tensile strength, elongation and CVN toughness requirements of the higher grade steel.

STRUCTURAL STEEL AND MISCELLANEOUS METALS: N/A

- 1. Materials a. High Strength Nuts: ASTM A563
- b. Hardened washers (to be used under all torqued high strength nuts) ASTM F436.
- c. Nuts and bolts for all other connections: ASTM A307 d. "Teks" screws shall be self-drilling and tapping screws as manufactured by ITW-Buildex, or EOR approved
- e. Sleeve anchors: Hilt 'Kwik-Bolt 3
- 2. Installation of High Strength bolts: Installation shall comply with AISC "Specification for Structural Joints Using ASTM A325 or A490 Bolts. a. Connection noted "hand tighten only" need only be tightened as tight as possible with a spud wrench.
- b. All other connections shall be tightened by turn of nut method. 3. "Z" Purlins:
- a. All structural mill sections or welded-up plate shall be designed in accordance with the 2005 edition of AISC "Specification for Structural Steel Buildings", and all cold-formed steel structural members shall be designed in accordance with the 2004 edition of AISI "Specifications for the Design of Cold-Formed Steel Structural Members.'
- b. Minimum material specifications shall be as follows:
- i. Galvanized steel conforms to ASTM A-653 (Fy = 57ksi, Fu = 67.7ksi minimum). ii. Hot rolled painted steel conforms to ASTM A-568, Grade 50 (Fy = 57ksi, Fu = 67.7ksi minimum).
- c. Purlins shall be "Z" shaped, precision roll formed, with depth of 8" and flange lengths of 3 ½".
- d. Bracing shall be located as indicated on drawings. 4. Roof tie rods shall be $\frac{7}{3}$ " diameter A-572 (Fy = 50ksi, Fu = 65ksi minimum).
- 5. Painting: At all steel elements not galvanized or embedded in concrete, clean by mechanical means such as sandblasting or wire brushing as required to remove rust, scale, etc., and with mineral spirits as required to remove oil, grease, etc. Factory cover all steel with one coat of red oxide primer paint formulated to equal or exceed the performance requirements of Federal Specifications TT-P-636D, TT-P-664C and SSPC Paint 25. Field touch-up any damaged areas. Subsequent finish, painting, if required shall be performed in the field by others.

METAL BUILDING SPECIFICATIONS:

1. See Construction Documents prepared by "American Building Company" Job No.: 51-1868-01 & 51-1868-02, dated 1/26/10 for the specifications required for the metal building.

WOOD CONSTRUCTION:

- content is 19% or less.
- for additional information).
- 3. All nailing shall comply with CBC, Table 2304.9.1.
- 4. Plywood shall be grade-marked per American Plywood Association C-D Exposure 1 (CDX) (24/0) minimum, or as noted on plans. Plywood shall conform to DOC PS1 or PS2. If exposed to weather, use exterior grade. Fasteners for pressure (preservative) treated wood shall be as noted in Item #20 in GENERAL REQUIREMENTS. 5. Roofing shall not be applied until plywood diaphragm and nailing has been inspected.
- 6. Framing of exterior walls shall be 2x 6 #2 DF-L studs at 16" o.c. and interior walls shall be 2x 4 Standard or
- height from footing to floor or roof; floor to floor; or floor to roof, UNO.
- be DF-L pressure treated to concrete.
- 8. Fabricated wood trusses shall comply with the requirements of CBC, Section 2303.4.
- 9. 2x solid blocking shall be placed between joists, rafters or trusses at all supports.
- in depth. Use 2x3 or solid blocking, or an approved type metal bridging.
- double and triple 2x studs also. 13. Fireblock at floor, ceiling coves and soffits. CBC Section 717.2
- height of studs, and between stair stringers at support and mid-span.
- treated. CBC Section 2304.11.2.2
- 15. No wood shall be placed closer than 8" to earth at slabs, unless it is foundation grade redwood or pressure 16. Sills or plates bearing on concrete or masonry, which is within 48" or earth, shall be pressure treated and shall be bolted to the foundation with minimum of % diameter x 10" anchor bolts at 6'-0" o.c. max and 12" min from ends. Two bolts minimum per piece. (Interior non-bearing, non-shear, stud wall sill plates may be secured to concrete slabs with 'Hilti' type X-U 72 shot pins at 16"o.c. Installation shall conform to ICC-ES ESR-2269.) Fasteners for pressure (preservative) treated wood shall be per Item #20, GENERAL REQUIREMENTS.
- 17. Holes in sill plates or ledgers for anchor bolts shall be the hole dia. $\pm 1/16^{\circ}$. No over sizing is allowed other than this. If holes of greater size exist, Contractor is to fill the space around the anchor bolt with quick-setting, shrinkage resistant, drypacking product capable of transferring loads. 18. All bolts bearing on wood shall have standard cut washer under head and nut, UNO. 19. Cut washers shall be placed under heads and nuts of all bolts, and under heads of lag bolts. Double cut
- washers shall be used for bolts connecting wood ledgers to concrete or masonry walls. 20. Lag bolts (and screws) shall be predrilled 1/16" less than shank diameter to full depth and screwed (not driven) into place.
- 21. Lag bolts (and screws) shall be predrilled 1/16" less than shank diameter to full depth and screwed (not driven) into place.
- 22. All bolts shall be re-tightened prior to application of plywood, plaster, etc.
- 23. Structural members shall not be cut for pipes, ducts, etc., unless specifically noted or detailed. 24. Unless otherwise noted, anchor bolts are to be full diameter cut thread bolts, made from F-1554, Gr. 36 steel,
- by an American manufacturer. 25. Nails shall not be driven closer than ½ of their length, nor closer to the edge of the member than ¼ length,
- except for sheathing. 26. Sub-bore when nails tend to split wood. Sub-bore for 20d and larger nails. Drill diameter shall be 0.75 times
- nail diameter 27. Metal Framing angles, anchors, clips, straps, tie, holdowns, etc., shall be manufactured by 'Simpson Strong-Tie Co.' or an approved equal.
- a. The Contractor shall have on the job, during construction, a current version of the Simpson Strong Tie, Co. "Connectors for Wood Construction". b. All sheet metal gages, shapes, nailing, and load capacities of all timber connections shall be as shown in the above mentioned catalog.
- c. Simpson Strong Tie recommends the use of stainless steel fasteners, anchors, and connectors with treated wood when possible. At a minimum use ZMAX (G185 HDG per ASTM A653), Hot-Dip Galvanized (HDG) (per ASTM A123 for connectors and ASTM A153 for fasteners), or mechanically galvanized fasteners (per ASTM B695, Class 55 or greater) with many of the alternative pressure-treated woods.
- 28. Plywood used in roof, floors, and decks shall be placed with face grain perpendicular to supports. Plywood sheets shall be staggered. Please note that because OSB is more prone to moisture absorption, the Contractor shall be responsible for removal of accumulated waters and care must be taken to avoid such, when choosing to use OSB sheathing and where it is used. 29. In general, plywood panel edges (for shear walls, roofs, floors, and decks) shall bear on framing members (2x
- minimum) and butt along their center lines.
- 30. Place beams with natural camber upward. mechanical galvanizing.
- 32. Bored Holes: A hole not greater in diameter than 40% of the stud width may be bored into any stud. Bored holes not greater than 60% of the width of the stud are permitted in non-bearing partitions, or in any wall where each bored stud is doubled, provided not more than two such successive double studs are so bored. In no case shall the edge of the bored hole be nearer than 5/8 inch to the edge of the stud. Bored hole shall not be located at the section of the stud as a cut or notch. When bored holes exceed above criteria, then reinforce
- plate, sill, or studs as follows:
- a. Plates: 1 ½" x ½" strap each side of plate nailed with 4-16d each side of hole. Holes over 33% of the plate width are not permitted in any plate. Any pipe or conduit requiring a hole larger than 33 % of the plate width shall be brought to the attention of the engineer immediately.
- b. Sills: Splice in a manner similar to plates above, at holes between 25% and 33% of sill width. Sills may be completely cut on each side of a pipe or conduit provided an additional anchor bolt or 6-16dnails are placed within 9" of the end of the sill, each side of the pipe or conduit.
- c. Studs: Block on each side of the stud with block of same material and dimension as stud. Extend 2 stud widths each side of hole and provide 3-16d/ nails to stud each side of hole. Bored boles greater than 33%, but less than 60% of the width of the stud are permitted, where each stud is doubled and not more than two successive double studs are so bored and each bored stud is reinforced as above.
- 33. Cutting and Notching: In exterior walls and bearing partitions, any wood stud may be cut or notched to a depth not exceeding 25% of its width. Cutting or notching of studs to a depth not greater than 40% depth of the stud is permitted in non-bearing partitions supporting no loads other than the weight of the partition. 34. Holes and Notches in Joists:
- the middle third of span, or within 18" of supports. span and within the middle third of joist's depth. c. Holes shall not be bored within 2" of the top or bottom of the joist
- 35. Posts: All posts on upper levels are to be stacked on post of equal size at levels below, unless a larger post is specified on the plans. Blocking shall be used to fully transfer the post area through floors. This arrangement shall continue until the post is supported by a designed beam or the foundations. Post inside walls shall bear on sill plates, and isolated posts shall be seated in Simpson post bases, unless noted otherwise on plans.
- 36. The use of chain saws for cutting framing members is prohibited without the approval of the engineer. 37. Shear walls: Shear wall type and nailing shall be per the plans and the shear wall schedule on plans. Shear walls shall extend horizontally between openings unless noted otherwise. Shear wall lengths shown are minimum required. All upper floor shear walls shall extend through attics to the roof diaphragm. Conform to the
- following requirements unless otherwise noted:
- a. Transfer nailing and anchorage is to be per the structural details. Over driving of nails through the panel surface may be cause for rejection of panel by the Inspector or the Engineer. All shear wall and holdown anchors to be nailed with COMMON nails. All edge nails to have a minimum 1/2" edge distance. Nails used in pressure treated sill plates shall be hot-dipped zinc coated galvanized per CBC 2304.9.5. b. 3x framing as noted on the shear wall schedule, is required as follows:
- b.a. At all panel joints,
- plates. b.c. At double sided shear wall plates where 10d/ nails shall be staggered. Top and bottom plates may be doubles 2x's spiked with 2-16d/ at 12"o.c. and shear wall boundary nails staggered alternate
- 38. Studs supporting two floors, a roof and ceiling must be 3x4 or 2x6 at 16"o.c. (minimum) per Table 2308.9.1. Cripple wall studs exceeding 4 feet in height shall be 3"x4" or 2"x 6" when supporting two stories. Section 2308.9.4. 39. Nails for all structural framing shall be as specified below (UNO): NAIL TYPE DIAMETER LENGTH 0.131" 8d Common 2 ½" 10d Common 0.148"
- 16d Screw Shank 0.148" 16d Common 0.162" 20d Common 0.192" 40. Nail sizes for wood structural panel horizontal diaphragms and shear walls accordingly: SHEATHING NAIL TYPE DIAMETER 0.131" 8d Common
- 0.148" 10d Common

1. Structural lumber shall be grade-marked Douglas Fir Larch (DF-L) per Standard Grading and Dressing Rules #17 of West Coast Lumber Inspections Bureau and/or CBC Section 2301.1, the maximum moisture content of 19% (and minimum of 15%) shall be verified immediately prior to weather protecting exposed surfaces. If moisture content is greater than 19%, framing shall not be completely enclosed/covered until moisture

2. Common nails shall be used. Box nails, if increased in number by 33%, may also be used. (See Notes #36-38

- Better at 16" o.c. with corner studs. Construction shall conform to CBC, Section 2304 (UNO). Studs to be full 7. Lap all double top plates 4'-0", and provide a minimum of (12)-16d $(0.162" \times 3 \%")$ at all splices, UNO. Sill to

10. Joists shall be blocked at supports, and bridged or blocked at intervals or 8'-0", where joists are 2x8 or

- 11. Cross-bridging shall be provided at 8'-0"o.c. max for all floor joists over 4" in depth, and all roof joists over 8" 12. Joists under bearing partitions (one story above) shall be doubled; tripled for two stories above, connected with 16d at 12"o.c., staggered, from one side for doubles; both sides for triples. This nailing shall be used for
- 14. Fireblocking, 1 ½" thick shall be placed in stud walls at ceiling and floor levels, at mid-height of each 10'-0"

31. Where wood stud walls abut concrete or masonry walls, the end stud (PTDF or redwood) shall be bolted to concrete/masonry with 5/8" diameter anchor bolts (with embedment of 2/3 wall thickness) 12" from top and bottom of stud. CBC 2304.9.5: ASTM 123 for connectors, ASTM 153 for fasteners and ASTM B695 for

- a. Notches in the top and bottom of joists shall not exceed one sixth the depth and shall not be located in b. Holes bored in joists shall not exceed one third of joist depth and shall be locate within middle 2/3 of
- b.b. Sill plates on masonry or concrete. Nails shall be staggered in 3x members. Top and bottom plates may be double 2x's spiked with 2-16d/ at 12"o.c. and shear wall boundary nails staggered alternate
 - 3 1⁄2" 3 ½"
 - MINIMUM LENGTH
 - 1 ¹/₂" + Sheathing Thickness 1 [™]" + Sheathing Thickness
- 41. Fasteners for pressure (preservative) treated wood shall be as stated in Note 20, GENERAL REQUIREMENTS.

MANUFACTURED LUMBER SPECIFICATIONS:

- 1. Glue Laminated (Glu-lam) Beams and Posts: a. All glu-lam beams (GLB) and posts shall comply with "Standard Specifications for Structural Laminated Douglas Fir (Coastal Region) Timber", standard grading rules WWPA. b. Beams shall be Douglas Fir-Larch (DF-L) combination 24F-V8 per 2007 California Building Code (24F-V4
- may be used for single simple span conditions with standard camber), unless noted otherwise. Fb = 2400psi Fv = 265psi
- Fc(Perp) = 650psi E = 1.8 x 106psi
- c. Posts shall be combination 1 (one).
- d. Fabricator shall submit AITC certificate of inspection to the Building Department for each beam and post prior to erection. e. Glue shall be interior type and shall conform to ANSI Standard A190.1-02 and AITC 200.
- f. Where glu-lam beams are used in panelized roof structures Fabricator shall verify the adequacy of roof drainage and submit shop drawings to Engineer for review. g. Service temperature of the building shall not exceed 150°F.
- h. No notching or boring of members is allowed unless permission is obtained from the EOR i. All glu-lam beams to receive a post of same width, with a minimum of (1) AC or ACE post cap at each side, UNO on plans.
- j. Beams shall be end sealed and load wrapped for protection during shipment. k. Shop drawings for the fabrication of glue-laminated timber shall be approved by contractor and submitted to the DPR's for his review prior to installation.
- 2. Wood "I" joists, laminated veneer lumber, laminated strand lumber, and parallel strand lumber: a. All wood "I" joists shall be manufactured to the standards set forth in ICC-ES ESR-1153. b. All laminated veneer lumber (LVL) shall be 1.9E and manufactured to standards set forth in ICC-ES-ESR
- c. All parallel strand lumber (PSL) shall be 2.0E and manufactured to standards set forth in the ICC-ES
- ESR-1387.
- d. All Wolmanized parallel strand lumber (PSL) shall be manufactured to standards set forth in the ICC-ES ESR-1387.
- e. All laminated strand lumber (LSL) shall be 1.55E and manufactured to standards set forth in the ICC-ES ESR-1387.
- f. All joists/beams shall bear an identification stamp indicating the joist type, ICC-ES report number, and
- manufacturer. g. No notching of flanges is allowed at "I" joists, however, boring per ICC-ES ESR-1153 report is allowed at
- webs for ducts, pipes, etc. h. All laminated veneer lumber or multiple "I" joist beams to receive a post of same width and minimum of (1) AC or ACE post cap at each side, UNO (provide web fillers at built-up "I" beams).
- i. All hangers supporting wood "I" joists shall laterally support top flange or web stiffeners shall be

WOOD TRUSSES: N/A

- 1. Wood trusses shall be designed by a California registered Civil or Structural Engineer and shall be fabricated in a plant approved by the Building Official.
- Certified calculations and details shall be submitted to the EOR and Building Department for review and approval prior to issuance of building permit.
- 3. All material and workmanship shall comply with TPI (Truss Plate Institute) 1, and metal connector plates shall be of an ICC approved type.
- 4. Shop drawings for the roof/floor trusses shall be submitted to the Building Department for review and approval prior to issuance of building permit. Shop drawings shall show all bridging and bracing requirements. Submittals shall include structural calculations. Submittals shall be signed by the California registered Engineer responsible for their design and shall bear some indication of acceptance by the project designer.
- 5. Truss Manufacturer is responsible for verifying all dimensions (field dimensions if necessary), slopes, and neights prior to fabrication. Truss Manufacturer shall provide adequate backing for hangers as specified herein and shall verify loading on these hangers, or shall notify designer of any changes from the design presented on these plans.
- 6. Truss Manufacturer shall assume full liability for providing correct truss configuration, truss sizes, lengths, etc., and ensure that all members are located as required to allow for proper installation of all truss
- 7. Truss designers shall specify all truss hangers. 8. Temporary and permanent truss bracing shall be provided per the requirements and recommendations of
- TPI (Truss Plate Institute)
- 9. If noted on drawings, use minimum of double 2x6 top and bottom chords on all girder trusses. 10. All truss blocking shall be design and supplied by Truss Manufacturer.
- 11. Trusses shall bear on 'bearing walls' only.
- 12. Interior 'non-bearing walls' shall be isolated from vertical truss loads.
- 13. Trusses shall be installed with all bearing hardware, bridging, blocking, pre-notched bearing plates, or beveled bearing plates as per Manufacturer's recommendations and these drawings. The preceding items shall be installed prior to any truss loading. 14. It trusses are to be stored prior to erection, they shall be stored in a vertical position and protected from
- the weather. 15. Temporary construction loads shall not be placed on trusses until trusses are secured and all erection hardware (blocking, bridging, bracing, hardware, etc.) has been placed. Temporary construction loads shall not exceed roof live load.
- 16. If erection bracing is specified, then bracing shall remain in place until floor/roof sheathing is placed and nailed (or fastened) 17. Each truss shall be legibly branded, marked or otherwise have permanently affixed thereto the following
- information located within 2 feet of the center of the span of the bottom chord: a. Identity of the company manufacturing the truss. b. The design load.
- c. The spacing of trusses. 18. Truss Design Criteria:
- Roof Dead Load (D) =

Live Load (Lr) = Deflection = Floor

Dead Load (D) = Live Load (L) = Partition Dead Load (D) = Deflection =

psf flat roof ## psf roof slope equal to or greater than4:12

- ## psf L/240, dead plus live load
- ## psf ## psf
- **##** psf L/400, residential Dead plus Live Load **##** psf L/600, commercial Dead plus Live Load

1. Certification 2. ASTM Standards to be met

Materials

- transfer loads.
- 8. Fastening and Attachments

LIGHTGAGE METAL FRAMING: N/A

a. Certifications shall be statements from the manufacturer certifying that the materials conform to the appropriate requirements as outlines in the contract documents.

a. C-954: Standard specifications for steel drill screws for the application of gypsum board or metal plaster bases to steel studs from 0.033" to 0.112" in thickness. b. C-955: Standard specifications for load bearing (transverse and axial) stud studs, runners (track) and bracing or bridging for screw application of gypsum board and metal plaster base. c. C-1007: Standard specification for the installation of load bearing (transfer and axial) steel studs

 All materials shall be equal to those manufactured by Cemco Steel Framing Systems. b. All studs and/or joists and accessories shall be of the type, size, steel thickness, and spacing shown

on the plans. Studs, runners (track), bracing and shall be manufactured per ASTM Specification

c. All galvanized studs, joists and accessories, 16ga. or heavier, shall be formed from steel that conforms to the requirements of ASTM A-633 Sq. Grade 50/1 and as set forth in Section A3.1 of the AISI "Specification for the Design of Cold-Formed Steel Structural Members", latest edition. d. All galvanized studs, joists, and accessories 18ga., shall be formed from steel that conforms to the

requirements of ASTM A-653 Sq. Grade 33 and as set forth in Section A3.1 of the AISI "Specification for the Design of Cold-Formed Steel Structural Members", latest edition. e. All galvanized studs, joists and accessories 20ga., shall be formed from steel that conforms to the requirements of ASTM A653 Sq. Grade 33 and as set forth in Section 1.2 of the AISI "Specification

for the Design of Cold-Formed Steel Structural Members", latest edition.

f. All galvanized studs, joists and accessories shall have a minimum G-60 coating.

g. Physical properties and allowable load capabilities of members shall be developed in accordance with AISI "Specification for the Design of Cold-Formed Steel Structural Members", latest edition. h. In accordance with AISI Section D4, rigid collateral facing materials may be considered as adequate support of members against rotation.

4. Installation: General

5. Installation: Panelized Construction

and related accessories.

a. Methods of construction may be either piece by piece (stick built), or by fabrication into panels either on or off site.

b. Connection shall be accomplished with self-drilling screws or welding so that the connection meets or exceeds the design loads required at that connection. c. Axially loaded studs shall be installed seated squarely (within 1/16") against the portion of the top

and bottom tracks. Tracks shall rest on a continuous, uniform bearing surface. d. Cutting of steel framing members may be accomplished with a saw or shear. The cutting of load bearing members is not permitted. Cutting of loaded members is not permitted unless under supervision of the project DPR's.

e. Install jamb assemblies at all openings.

f. Install headers in all openings in axially loaded walls that are larger than the structural spacing in that wall. Form headers as shown on the drawings. g. Provide jack studs to support each end of headers. These studs shall be securely connected to the header and jamb stud and must seat squarely in the lower track of the wall, and be properly

attached to it. h. Holes that are field cut into steel framing members shall be within the limitations of the product and its design. Provide reinforcement where holes are cut through load bearing members in accordance with manufacturer's recommendations and as approved by project DPR.

i. Touch up all steed bared by welding zinc-rich paint. j. Gypsum board shall be attached to steel studs in accordance with ASTM Specification C-840, except that the drill screws used (Specification ASTM C-954) shall be spaced not more than 8" on center at the edge and ends, and not more than 12"o.c., in the field on the board.

a. Handling and lifting of prefabricated panels shall not cause permanent distortion of any member of collateral material.

b. Make all stud to track connections prior to hoisting of panel.

c. Where splicing of track is necessary between stud spacings, a piece of stud shall be placed in the track fastened with two screws or welds per flange to each piece of track. d. Complete bearing shall be maintained under tracks to provide for load transfer axially loaded

assemblies. If the erection contractor is bearing on work set by another trade, it is his responsibility to ensure bearing criteria are met. Any discrepancy shall be brought to the attention of the project

e. Align all panels to provide continuity of any wall/floor surface.

6. Installation: Non-Panelized (Stick-Built) Construction a. Align track accurately at supporting structure and fasten to structure as shown on drawings.

b. Track intersection shall butt evenly

c. Studs shall be plumbed, aligned, and securely attached to flanges or web upper and lower tracks. Axially loaded studs shall be seated squarely in both top and bottom tracks. d. Where splicing or track is necessary between stud spacings, a piece of stud shall be placed in the track fastened with two screws or welds per flange to each piece of track.

e. Complete bearing shall be maintained under tracks to provide for load transfer axially loaded assemblies. If the erecting contractor is bearing on work set by another trade, it is his responsibility to ensure that bearing criteria are met. Any discrepancy shall be brought to the attention of the project DPR prior to the commencement of the work.

Installation: Joists a. Joists shall be located directly over bearing studs or a load distribution method shall be provided to

b. Provide web stiffeners where necessary at reaction points, and at points of concentrated loads. c. Joists shall be installed with their web area perpendicular to the bearing steel.

d. Provide additional joists under parallel partitions where the partition length exceeds ½ of the joist e. End blocking shall be provided where joist ends are not otherwise restrained from rotation.

f. All bridging, bracing, blocking, web reinforcement, etc., must be placed prior to loading of floors. a. Welds shall conform to the requirements AWS D1.1, AWS D1.3, and AISI Manual Section E2. Welds

may be butt, fillet, spot, or groove type, the appropriateness of which shall be determined by, and within, the design calculations. All welds shall be touched-up using zinc-rich paint. b. Steel drill screws shall be of the minimum diameter indicated by the design of that particular

attachment detail. Penetration through joined material shall not be less than 3 exposed threads. c. Screws shall have a protective coating at least equivalent to cadmium or zinc plating (ASTM A-165 Type for use in exterior assemblies)

GYPSUM DRYWALL

1. Shall comply with Chapter 25 of the 2007 CBC 2. Material:

a. Resilient channels: 25 gage minimum; US Gypsum's "RC-1" or equivalent.

- b. Tape and joint cement: as recommended by board manufacturer. c. Fasteners: All fasteners shall be of the length and pattern recommended by the manufacturer of the gypsum panels used.
- d. Metal cornerbead and trim: All metal cornerbead and trim and all accessory items, shall be a system recommended by the manufacturer as compatible with the gypsum panels. e. Water: All water used in joint system shall be clean, fresh and free from deleterious amounts of
- foreign materials f. Gypsum board: Wall and ceiling shall be minimum ½" thick. Gypsum board in areas subject to moisture shall be water resistant gypsum.
- 3. All gypsum panels shall be the product of one manufacturer, with tapered edge for finished surfaces and shall comply with ASTM C-36. 4. Gypsum board shall be applied first to ceiling, then to the wall where required. Boards of maximum size
- shall be used. Boards shall be installed with the long dimensions at right angles to the framing members with all joints tight but not forced into place. Nailing shall be 'single-nailing' or 'double-nailing' at option of the installer. Fasteners shall be spaced at 6" maximum at all supports. 5. Joint tape shall be centered over joints, shall present a smooth uniform surface, and shall be seated in joint cement. Final coating of joint cement shall be applied after the tape has dried. All in-field
- nails/screws shall be covered. metal corners or other reinforcement shall have flanges covered with two coats of cement. All cement shall be sanded smooth when dry. Do not sand through paper face of drywall or roughen the exposed surfaces.

STUCCO PATCHING NOTES: N/A

- Stucco shall be Portland Cement plaster mixed and installed in compliance with Chapter 25 of the CBC. Where stucco must be patched to meet existing stucco in the same place, break back existing stucco to leave minimum 2" of existing lath, and overlap with new lath. 3. Where stucco must be patched to meet existing stucco to form a tee-intersection, form a ³/₈" wide x ³/₈"
- deep joint, and seal with "Sikalfex 15LM" by Sika, sealant color by owner. 4. Match existing stucco color and texture.

FRAMING CONSIDERATIONS TO HELP REDUCE STUCCO WALL CRACKING: N/A

- 1. Wood based sheathing panels used as a substrate for stucco, EIFS or other exterior siding systems, should have a nominal thickness of at least 15/32" OSB (or 7/16" Structural I OSB) or 5-ply, 5-layer plywood for panels applied with their major axis parallel to supports spaced 16" o.c. Panels applied with their major axis parallel to supports spaced 24" o.c. should be at least 19/32" OSB or 5-ply, 5-layer plywood. Thinner panels may be used when installed with their major axis across supports. Minimum thickness of such panels should be 3/8" when supports are spaced 16"o.c. and 7/16" when supports are spaced 24"o.c.
- 2. Blocking is recommended between studs along horizontal panel joints when panels are installed horizontally. Although blocking is not always required by the codes to meet wall bracing requirements, it is recommended for best panel performance and to avoid cracking of the stucco system along horizontal joints in wall sheathing. Blocking is required along horizontal joints when panels are used for shear wall applications.
- 3. A minimum $\frac{1}{3}$ " space is recommended between panels at edge and end joints to allow for panel expansion at higher moisture conditions. Use 8d nails to fasten panels that are $\frac{1}{2}$ " or less in thickness and 10d nails for panels over ½" thick. Nails should be spaced a maximum of 6"o.c. along panel edges and 12"o.c. at intermediate supports. Shear wall applications may require closer spacing of nails.
- 4. Even up offset framing members such as ends of shear paneling, blocking that protrudes into the stucco plane or offset plate lines before lathing. Refer to APA "Installation of Stucco over Wood Structural Panel Wall Sheathing." Stagger the mid-span blocking to prevent studs from twisting. Verify that the framer correctly installs all structural members.
- 6. Load roof tiles five days prior to lathing installations.
- 7. Drywall nailing prior to brown coat installation or screw attachment. 8. Use licenses plastering contractors that apply stucco according to local building codes.
- 9. If stucco is to be painted, allow 28 days for curing cementitious products prior to painting.
- 10. Refer to the American Plywood Association's recommended method of "Installing Wood Shear Paneling," including gaping and nailing 6"o.c. to allow for lateral expansion when set. 11. Refer to the Engineering Wood Association's "Design and Construction Guide Method, of Installing Stucco over APA Panel Sheathing."



INSPECTION AND OBSERVATION PROGRAM GUIDELINES CONTENTS:

- **1.0 GENERAL INFORMATION**
- 1.1 DEFINITIONS 2.0 PROCEDURES FOR STRUCTURAL OBSERVATION
- 2.1 SUBMISSION OF THE INSPECTION AND OBSERVATION PROGRAM 2.2 THE "STRUCTURAL OBSERVER OF RECORD" AND PERSONS WHO PERFORM THE STRUCTURAL
- OBSERVATION
- 2.3 STRUCTURAL OBSERVATION 2.4 SUBMISSION OF STRUCTURAL OBSERVATION OR SPECIAL INSPECTION REPORTS
- 3.0 SPECIAL INSPECTION AND MATERIAL TESTING 3.1 CONSTRUCTION SCHEDULE
- 3.2 THE SPECIAL INSPECTOR
- 3.3 INSPECTION REPORTS 3.4 MATERIAL TESTING
- 3.5 TESTING CRITERIA AND REPORT DEVELOPMENT
- 3.6 REINFORCED CONCRETE 3.7 STRUCTURAL MASONRY
- 3.8 STRUCTURAL STEEL WELDING 3.9 HIGH STRENGTH BOLTING

1.0 GENERAL INFORMATION

- 1.01 THE DESIGN PROFESSIONAL OF RECORD (DPR) SHALL SUBMIT AN INSPECTION PROGRAM TO THE BUILDING OFFICIAL FOR APPROVAL PRIOR TO ISSUANCE OF THE BUILDING PERMIT. THE PROGRAM SHALL IDENTIFY THE PORTION OF THE WORK THAT REQUIRES SPECIAL INSPECTION / STRUCTURAL OBSERVATION AND DESCRIBE THE DUTIES OF THE SPECIAL INSPECTOR AND THE STRUCTURAL OBSERVER (REF 1704.1.1, 1705.1 & 1709).
- 1.02 THE OWNER OR ITS DESIGNEE SHALL EMPLOY THE SPECIAL INSPECTOR OR INSPECTION AGENCY TO PERFORM INSPECTIONS SPECIFIED IN THIS SECTION (REF 1704.1).
- 1.03 THE OWNER OR ITS DESIGNEE SHALL EMPLOY THE MATERIAL TESTING LABORATORY TO PERFORM TESTS SPECIFIED IN THIS SECTION.
- 1.04 ACCREDITATION TO ASTM E-329 (LATEST EDITION) STANDARD SPECIFICATIONS FOR AGENCIES ENGAGED IN THE INSPECTION AND THE TESTING OF MATERIALS USED IN CONSTRUCTION, IS PREFERRED.
- 1.05 THE OWNER OR ITS DESIGNEE SHALL EMPLOY THE DESIGN PROFESSIONAL RESPONSIBLE FOR THE STRUCTURAL DESIGN OR ANOTHER ENGINEER OR ARCHITECT DESIGNATED BY THE DPR TO PERFORM STRUCTURAL OBSERVATION (REF 1704.1).

1.1 **DEFINITIONS** DPR: ENGINEER OF RECORD / DESIGN PROFESSIONAL OF RECORD.

SPECIAL INSPECTOR: A QUALIFIED PERSON, APPROVED BY THE DPR, WHO HAS DEMONSTRATED COMPETENCE TO THE SATISFACTION OF THE BUILDING OFFICIAL AND THE DPR FOR INSPECTION OF THE PARTICULAR TYPE OF CONSTRUCTION OR OPERATION REQUIRING SPECIAL INSPECTION. DUTIES SHALL BE IN ACCORDANCE WITH CBC SECTION 1704.

TESTING LABORATORY: A QUALIFIED MATERIALS TESTING LABORATORY UNDER THE RESPONSIBLE CHARGE OF A LICENSED PROFESSIONAL ENGINEER, APPROVED BY THE BUILDING OFFICIAL AND THE DPR, TO MEASURE, EXAMINE, TEST, CALIBRATE OR OTHERWISE DETERMINE THE CHARACTERISTICS OR PERFORMANCE OF CONSTRUCTION MATERIALS AND VERIFY CONFIRMATION WITH CONSTRUCTION DOCUMENTS.

CONTINUOUS INSPECTION : FULL TIME OBSERVATION OF WORK REQUIRING SPECIAL INSPECTION BY AN APPROVED SPECIAL INSPECTOR WHO IS PRESENT IN THE AREA WHERE WORK IS BRING PERFORMED. (REF 1702).

PERIODIC SPECIAL INSPECTION : PART TIME OR INTERMITTENT OBSERVATION OF WORK REQUIRING SPECIAL INSPECTION BY AN APPROVED SPECIAL INSPECTOR WHO IS PRESENT IN THE AREA WHERE WORK IS BEING PERFORMED AND AT THE COMPLETION OF WORK. (REF 1702). STRUCTURAL OBSERVATION : VISUAL OBSERVATION OF THE STRUCTURAL SYSTEM, BY THE DPR OR

DESIGNEE, INCLUDING BUT NOT LIMITED TO THE ELEMENTS AND CONNECTIONS, FOR GENERAL CONFORMANCE TO THE APPROVED CONSTRUCTION DOCUMENTS AND SPECIFICATIONS. AT SIGNIFICANT CONSTRUCTION STAGES AND AT COMPLETION OF THE STRUCTURAL SYSTEM. STRUCTURAL OBSERVATION DOES NOT INCLUDE OR WAIVE THE RESPONSIBILITY FOR THE SPECIAL AND MUNICIPAL INSPECTIONS REQUIRED BY CODES AND SPECIFICATIONS. (REF 109 & 1704).

APPROVED FABRICATOR: AN ESTABLISHED AND QUALIFIED PERSON, FIRM OR CORPORATION APPROVED BY THE BUILDING OFFICIAL AND DPR, PURSUANT TO CHAPTER 17 OF THE 2007 CALIFORNIA BUILDING CODE. (REF 1702).

REQUIRED VERIFICATION AND INSPECTION OF CONCRETE CONSTRUCTION (TABLE 1704.4)							
VERIFICATION AND INSPECTION	SPECIAL INS	PECTION	SPECIAL	STRUCTURAL	REFERENCED STANDARD	CBC REFERENCE	
 Inspection of reinforcing steel, including prestressing tendons and placement. 		х			ACI 318: 3.5, 7.1-7-7	1913.4	
 Inspection of reinforcing steel welding in accordance with Table 1704.3, Item 5b. 		20.07 M			AWS D1.4 ACI 318: 3.5.2	80.00 M	
 Inspect bolts to be installed in concrete prior to and during placement of concrete where allowable loads have been increased. 	x				#10.4	1911.5	
. Verifying use of required design mix.		Х		100-000 m	ACI 318: Ch, 4, 5.2-5.4	1904.2.2, 1913.2, 1913.3	
 At the time fresh concrete is sampled to fabricate specimens for strength tests, perform slump and air content test, and determine the temperature of the concrete. 	x		dari birka	dia dia dia	ASTM C 172 ASTM C 31 ACI 318: 5.6, 5.8	1913.10	
 Inspection of concrete and shotcrete placement for proper application techniques. 	x	10.000	30.000		ACI 318: 5.9, 5.10	1913.6, 1913.7, 1913.8	
 Inspection for maintenance of specified curing temperature and techniques. 		х			ACI 318: 5.11-5.13	1913.9	
Inspection of prestressed concrete:	v				ACI 210, 10 20		
 b. Grouting of bonded prestressing tendons in the seismic- force-resisting system. 	×				ACI 318: 18.18.4		
. Erection of precast concrete members.	ancarvas	Х	an an an	- Der Sammen	ACI 318: Ch. 16	200.000 M	
 Verifcation of in-situ concrete strength, prior to stressing of tendons in posttensioned concrete and prior to removal of shores and forms from beams and structural slabs. 		х			ACI 318: 6.2		
 Inspect formwork for shape, location and dimensions of the concrete member being formed. 		х			ACI 318: 6.1.1		
 Verification of reinforcing bars and prestressing steel used to resist seismic forces in the following 							
a. Reinforced concrete intermediate frames		Х					
b. Special moment frames		Х			See note below	1709.2	
 Special reinforced concrete shearwall boundary elements 	0.0793	х			See note below	1706.5	
Testing of ASTM A615 reinforcing steel							
 Used to resist earthquake induced flexural and axial forces in: 							
1. Special moment frames		х			401210	1700.0	
2. Special reinforced concrete shearwall boundary elements	900 094 091	Х			ACI 318	T109'3	
 Chemical test of welded ASTM A615 reinforcing steel used to resist seismic forces 		х			ACI 318: 3.5.2	1708.3	
5. All chemical anchor installations	х		GSI				

N/A REQUIRED VERFICATION AND INSPECTION OF PIER FOUNDATIONS TABLE SPECIAL INSPECTION SPECIAL INSPECTOR STRUCTURAL OBSERVER INSPECTION TASK CONTINUOUS PERIODIC Observe drilling operations and maintain completed and accurate records for each pier. Verify placement locations and plumbness, confirm pier diameters, bell diameters (if applicable), lengths, embedment Х ---into bedrock (if applicable) and adequate end bearing strata For concrete piers, perform additional inspections in accordance Х -----with Section 1704.4. For masonry piers, perform additional inspections in accordance Х with Section 1704.5.

As masonry ensure comp a. Propo b. Constr c. Locati tende d. Prestr e. Grade The inspection a. Size a b. Type, of a or oth c. Specif d. Weldi e. Protectio below f. Applic Prior to grout compliance a. Grout b. Place prestr c. Propo for bn d. Cont Grout placer code and cor a. Grou Preparation and/or prisms 6. Compliance w construction of

verified.

2.0 PROCEDURES FOR STRUCT 2.1 SUBMISSION OF THE INSPECTION A

- INFORMATION OF THE PROGRAM SHALL BE BY THE GOVERNING JURISDICTION. THE PRO SPECIAL INSPECTION OR STRUCTURAL OBSE STRUCTURAL OBSERVER AND STAGES OF CO OCCUR. ALL SEISMIC RESISTING ELEMENTS OF A STR STRUCTURAL OBSERVATION, IF STRUCTURA OF SECTION 1709.2. IF STRUCTURAL OBSER
- TO THE DPR TO DESIGNATE THE STRUCTURA SHOULD PRECLUDE THE DPR FROM INCLUD STRUCTURAL OBSERVATION. THE INSPECTION AND OBSERVATION PROGI AND BE PLACED IN A CONSPICUOUS LOCATI FIREST PAGE OF THE STRUCTURAL NOTES. STRUCTURAL OBSERVER SUBSEQUENT TO IS REVISION TO THE APPROVED PLANS.

2.2 THE "STRUCTURAL OBSERVER OF RE STRUCTURAL OBSERVATION THE INDIVIDUAL OR FIRM WHO IS RESPONS THE "STRUCTURAL OBSERVER OF RECORD" MUST MEET ALL THE FOLLOWING THREE CO

- A. IT MUST BE A PERSON OR FIRM REGISTE ARCHITECTURE.
- B. IT MUST HAVE A DIRECT CONTRACTUAL STRUCTURAL OBSERVATION SERVICE. C. IT MUST BE EITHER THE DPR FOR THE ST
- BY THE DPR. THE PERSON WHO ACTUAL MAY BE EITHER THE STRUCTURAL OBSER RESPONSIBLE CONTROL OF THE STRUCTU
- 2.3 STRUCTURAL OBSERVATION
- 2.3.1 THE CONTRACTOR SHALL BE RESPONSIBLE REQUIRED OBSERVATION(S) FOR SCHEDULI OBSERVATION SCHEDULES MAY REQUIRE R REMOVAL AND REPLACEMENT OF ANY FINIS REMOVAL PROCESS OR AS REQUIRED FOR C EXPENSE. APPROVAL BY THE MUNICIPAL INS APPROVAL BY THE DPR DOES NOT REPLACE AND ANY OTHER INSPECTION REQUIREMEN
- 2.3.2 A PRE-CONSTRUCTION MEETING SHALL BE H STRUCTURAL SYSTEM TO BE OBSERVED, TO PLANS, SPECIFICATIONS, TESTS AND INSPEC MEETING SHALL INCLUDE THE DPR AND THE **OBSERVATION, THE CONTRACTOR, SPECIAL**
- 2.3.3 THE STRUCTURAL OBSERVER SHALL, AS A M FOLLOWING STAGES OF CONSTRUCTION, W A. CONCRETE AND REINFORCING STEEL: AF
- B. STEEL FRAMING: AFTER STEEL ERECTION, FIREPROOFING.
- C. UPON COMPLETION OF SHEAR WALL(S) D. BEFORE INSTALLATION OF FINISH MATER
- SHALL BE NAMED AND PROFESSIONAL REGI DEFICIENCIES OBSERVED MUST BE REPORTE RELEVANT SPECIAL INSPECTORS, THE CONTR ANY DEFICIENCY IS OBSERVED, A STRUCTUR BUILDING OFFICIAL AT EACH SIGNIFICANT C & OBSERVATION PROGRAM. THE JURISDICT
- TO FACILITATE THE CONSTRUCTION PROCES INSPECTION BASED ON A DRAFT REPORT PR PENDING ON SUBMISSION OF THE REPORT

- REINFORCING STEEL, PRIOR TO CONCRET CONNECTIONS.
 - E. AT COMPLETION OF THE STRUCTURAL S
 - F. OTHER SPECIFIED STAGES AS REQUIRED 2.4 SUBMISSION OF STRUCTURAL OBSE THE STRUCTURAL OBSERVER OF RECORD IS REPORT AS REQUIRED. THE PERSON WHO A DRAFT REPORT, NOTING ANY OBSERVED DE COMPLETED, STAMPED AND SIGNED BY TH **RESPONSIBILITY FOR THE REPORT. WHENEV** FIRM DESIGNATED BY THE STRUCTURAL OB

PROCEDURES FOR STRUCTURAL OBSERVATION	3.0	SPECIAL INSPECTION AND MATERIAL TESTING
SUBMISSION OF THE INSPECTION AND OBSERVATION PROGRAM	3.1	CONSTRUCTION SCHEDULE
INFORMATION OF THE PROGRAM SHALL BE PROVIDED ON THE ATTACHED FORMS UNLESS PRESCRIBED BY THE GOVERNING JURISDICTION. THE PROGRAM SHALL SPECIFY THE ITEMS OF WORK THAT REQUIRE SPECIAL INSPECTION OR STRUCTURAL OBSERVATION, NAMES OF THE SPECIAL INSPECTORS AND		THE CONTRACTOR SHALL BE RESPONSIBLE FOR PROVIDING THE SPECIAL INSPECTOR AND/OR TESTING LABORATORY AND/OR DPR WITH A CONSTRUCTION SCHEDULE AND SAFE ACCESS FOR PERFORMING INSPECTION / ON-SITE TESTING.
STRUCTURAL OBSERVER AND STAGES OF CONSTRUCTION AT WHICH STRUCTURAL OBSERVATION IS TO OCCUR.	3.2	THE SPECIAL INSPECTOR
ALL SEISMIC RESISTING ELEMENTS OF A STRUCTURAL SYSTEM SHALL BE INCLUDED IN THE SCOPE OF		THE FOLLOWING SHALL PROVIDE THE SPECIAL INSPECTION DUTIES:
STRUCTURAL OBSERVATION, IF STRUCTURAL OBSERVATION IS REQUIRED BY SUB-SECTION 1, 2, 3, OR 5 OF SECTION 1709.2. IF STRUCTURAL OBSERVATION IS REQUIRED BY SUB-SECTION 4 ALONG, IT IS UP		GSI SOILS, INC.
TO THE DPR TO DESIGNATE THE STRUCTURAL ELEMENTS THAT NEED TO BE OBSERVED. NOTHING SHOULD PRECLUDE THE DPR FROM INCLUDING NON-SEISMIC RESISTING ELEMENTS IN THE SCOPE OF		SPECIAL INSPECTOR OR FIRM
STRUCTURAL OBSERVATION.		141 SUBURBAN ROAD, SUITE D1, SAN LUIS OBISPO, CA
THE INSPECTION AND OBSERVATION PROGRAM SHALL BE MADE A PART OF THE APPROVED PLANS, AND BE PLACED IN A CONSPICUOUS LOCATION, SUCH AS ON THE FIRST PAGE OF THE PLANS OR THE		
FIREST PAGE OF THE STRUCTURAL NOTES. SUBSTITUTION OF SPECIAL INSPECTORS OR THE STRUCTURAL OBSERVER SUBSEQUENT TO ISSUANCE OF THE PERMIT MAY BE PROCESSED AS A		CONTACT NAME AND PHONE NUMBER(S)
REVISION TO THE APPROVED PLANS.		ALTERNATE INSPECTORS OR FIRMS ARE ALLOWED. WITH PRIOR WRITTEN APPROVAL BY THE BUILDING OFFICIAL AND THE DPR.
THE "STRUCTURAL OBSERVER OF RECORD" AND PERSONS WHO PERFORM THE	3.3	INSPECTION REPORTS
THE INDIVIDUAL OR FIRM WHO IS RESPONSIBLE FOR THE STRUCTURAL OBSERVATION MAY BE CALLED	3.3.1	THE SPECIAL INSPECTOR SHALL SUBMIT INSPECTION AND TESTING REPORTS TO THE DPR, THE
THE "STRUCTURAL OBSERVER OF RECORD" FOR THE PROJECT. A STRUCTURAL OBSERVER OF RECORD MUST MEET ALL THE FOLLOWING THREE CONDITIONS:		BUILDING OFFICIAL, THE CONTRACTOR, THE OWNER AND OTHER DESIGNATED PERSONS AT A REASONABLE FREQUENCY, AS ESTABLISHED IN THE PRE-CONSTRUCTION MEETING.
A. IT MUST BE A PERSON OR FIRM REGISTERED IN CALIFORNIA TO PRACTICE ENGINEERING OR	3.3.2	THE SPECIAL INSPECTOR SHALL SUBMIT A FINAL REPORT STATING WHETHER THE WORK REQUIRING SPECIAL INSPECTION WAS IN CONFORMANCE TO THE APPROVED PLANS AND SPECIFICATIONS AND
R IT MUST HAVE A DIRECT CONTRACTUAL RELATIONSHIP WITH THE OWNER TO PROVIDE THE		THE APPLICABLE PROVISIONS OF THE CODE.
STRUCTURAL OBSERVATION SERVICE.	3.3.3	SPECIAL INSPECTION REPORTS SHALL INCLUDE, BUT NOT LIMITED TO THE FOLLOWING:
C. IT MUST BE EITHER THE DPR FOR THE STRUCTURAL DESIGN, OR ANOTHER ENGINEER DESIGNATED BY THE DPR. THE PERSON WHO ACTUALLY PERFORMS STRUCTURAL OBSERVATION IN THE FIELD		A. PROJECT ADDRESS.
MAY BE EITHER THE STRUCTURAL OBSERVER OF RECORD, OR AN ENGINEER UNDER THE RESPONSIBLE CONTROL OF THE STRUCTURAL OBSERVER OF RECORD		B. PERMIT NUMBER AND GOVERNMENT AGENCY HAVING JURISDICTION.
		C. NAME AND ADDRESS (PHONE AND E-MAIL) OF DPR.
STRUCTURAL OBSERVATION		D. OWNER'S AGENT RELEVANT TO THE WORK.
THE CONTRACTOR SHALL BE RESPONSIBLE FOR NOTIFYING THE DPR 48 HOURS IN ADVANCE OF		E. DATE OF INSPECTION AND HOURS WORKED.
REQUIRED OBSERVATION(S) FOR SCHEDULING PURPOSES. FAILURE BY THE CONTRACTOR TO MEET OBSERVATION SCHEDULES MAY REQUIRE REMOVAL OF ANY SUBSEQUENT WORK FOR OBSERVATION.		 F. DESCRIPTION OF INSPECTIONS PERFORMED, INCLUDING LOCATION (REFERENCE GRID LINES AND FLOORS OR ELEVATION).
REMOVAL AND REPLACEMENT OF ANT HINSTED WORK AND/OK TRAMING DAMAGED BT THE REMOVAL PROCESS OR AS REQUIRED FOR CORRECTIVE ACTION SHALL BE AT THE CONTRACTOR'S EXPENSE APPROVAL BY THE MUNICIPAL INSPECTOR DOES NOT REPLACE OBSERVATION BY THE DPR		G. STATEMENT THAT WORK INSPECTED CONFORMS TO APPROVED PLANS AND SPECIFICATIONS.
APPROVAL BY THE DPR DOES NOT REPLACE THE INSPECTION PROCESS BY THE MUNICIPAL INSPECTOR AND ANY OTHER INSPECTION REQUIREMENTS.		H. LIST OF UNRESOLVED DEVIATIONS, EXCLUSIONS AND/OR ADDITIONS TO APPROVED PLANS AND SPECIFICATIONS AUTHORIZED BY DPR.
A PRE-CONSTRUCTION MEETING SHALL BE HELD TO REVIEW THE SCHEDULE AND DETAILS OF THE STRUCTURAL SYSTEM TO BE OBSERVED, TO VERIFY THE CONTRACTOR'S UNDER-STANDING OF THE		 CORRECTIONS OF PREVIOUSLY LISTED ITEMS WITH REFERENCE TO ORIGINAL REPORT INDICATING REJECTION.
PLANS, SPECIFICATIONS, TESTS AND INSPECTIONS AND REVIEW CRITICAL CONSTRUCTION DETAILS. THE MEETING SHALL INCLUDE THE DPR AND THE PARTY RESPONSIBLE FOR THE STRUCTURAL OBSERVATION, THE CONTRACTOR, SPECIAL INSPECTOR, AND SUBCONTRACTORS.		J. LIST OF TEST SPECIMENS TAKEN; MILL CERTIFICATIONS RECEIVED; NOTICE OF COMPLIANCE OR NON-COMPLIANCE ISSUED: CONCRETE MIX DESIGNS USED: WPS AND IDENTIFICATION NUMBERS:
THE STRUCTURAL OBSERVER SHALL, AS A MINIMUM, PERFORM STRUCTURAL OBSERVATIONS AT THE FOLLOWING STAGES OF CONSTRUCTION, WHERE APPLICABLE TO THE TABLES BELOW:		NAMES OF QUALIFIED PERSONNEL SUCH AS WELDERS AND PNEUMATIC CONCRETE OPERATORS.
A. CONCRETE AND REINFORCING STEEL: AFTER EXCAVATION OR FORMING AND PLACEMENT OF REINFORCING STEEL, PRIOR TO CONCRETE PLACEMENT AND CLOSING OF FORMS.	2.2.4	INSPECTION.
B. STEEL FRAMING: AFTER STEEL ERECTION, PRIOR TO DECKING AND PLACEMENT OF CONCRETE OR FIREPROOFING.	5.5.4	ATTENTION OF THE CONTRACTOR FOR CORRECTION, THEN, IF UNCORRECTED WITHIN 24 HOURS, TO THE DPR AND TO THE BUILDING OFFICIAL.
C. UPON COMPLETION OF SHEAR WALL(S) AND/OR THE ANCHORAGE SYSTEM.	3.4	MATERIAL TESTING
D. BEFORE INSTALLATION OF FINISH MATERIAL ON WALLS THAT WOULD COVER ANY STRUCTURAL	5.4	A TESTING LABORATORY, APPROVED BY THE BUILDING OFFICIAL AND THE DPR. SHALL PERFORM
CONNECTIONS.		MATERIAL TESTING.
E. AT COMPLETION OF THE STRUCTURAL SYSTEM.		GSI SOILS, INC.
F. OTHER SPECIFIED STAGES AS REQUIRED BY THE DPR OR BUILDING OFFICIAL.		141 SUBURBAN ROAD SUITE DI SAN LUIS OBISPO CA
SUBMISSION OF STRUCTURAL OBSERVATION OR SPECIAL INSPECTION REPORTS		ADDRESS
THE STRUCTURAL OBSERVER OF RECORD IS RESPONSIBLE FOR SUBMITTING THE OBSERVATION REPORT AS REQUIRED. THE PERSON WHO ACTUALLY PERFORMS THE OBSERVATION MAY FILL OUT A DRAFT REPORT, NOTING ANY OBSERVED DEFICIENCIES. THE DRAFT REPORT SHALL BE REVIEWED,		RON CHURCH - 805-541-5493 CONTACT NAME AND PHONE NUMBER(S)
COMPLETED, STAMPED AND SIGNED BY THE STRUCTURAL OBSERVER OF RECORD, WHO TAKES THE RESPONSIBILITY FOR THE REPORT. WHENEVER A STRUCTURAL OBSERVATION IS PERFORMED BY A FIRM DESIGNATED BY THE STRUCTURAL OBSERVER OF RECORD, THAT FIRM'S RESPONSIBLE PARTY	3.4.1	ALTERNATE TESTING LABORATORIES ARE ALLOWED, WITH PRIOR, WRITTEN APPROVAL BY THE BUILDING OFFICIAL AND DPR.
SHALL BE NAMED AND PROFESSIONAL REGISTRATION NUMBER SHALL BE IDENTIFIED IN THE REPORT. DEFICIENCIES OBSERVED MUST BE REPORTED IN WRITING TO THE OWNER'S REPRESENTATIVE,	3.4.2	COPIES OF THE TEST RESULTS AND FINAL REPORTS SHALL BE FURNISHED TO THE DPR AND THE BUILDING OFFICIAL WITHIN 2 DAYS OF THE TEST.
RELEVANT SPECIAL INSPECTORS, THE CONTRACTOR AND THE BUILDING OFFICIAL. WHETHER OR NOT ANY DEFICIENCY IS OBSERVED, A STRUCTURAL OBSERVATION REPORT SHALL BE SUBMITTED TO THE BUILDING OFFICIAL AT EACH SIGNIFICANT CONSTRUCTION STAGE AS DESIGNATED IN THE INSPECTION	35	TESTING CRITERIA AND REPORT DEVELOPMENT
& OBSERVATION PROGRAM. THE JURISDICTION'S INSPECTION APPROVAL AT THOSE STAGES SHALL NOT OCCUR BEFORE RECEIVING THE REPORT.	251	THE NUMBER AND EREQUENCY OF TAKING OF TEST SPECIMENS AND TESTING SHALL BE THE MINIMUM
TO FACILITATE THE CONSTRUCTION PROCESS, AN INSPECTOR MAY CONDITIONALLY APPROVE AN	5.5.1	REQUIRED BY THE GOVERNING CODES, STANDARDS, OR AS SPECIFIED IN THE APPROVED PLANS, WHICHEVER IS MORE STRINGENT.
INSPECTION BASED ON A DRAFT REPORT PREPARED BY THE STRUCTURAL OBSERVER IN THE FIELD, PENDING ON SUBMISSION OF THE REPORT STAMPED AND SIGNED BY THE STRUCTURAL OBSERVER OF RECORD.	3.5.2	LABORATORY TEST RESULTS AND/OR MILL (SUPPLIER) CERTIFICATIONS SHALL BE SUBMITTED TO THE
		FOLLOWING:
		A. CONCRETE MIX DESIGNS. B. REINFORCING STEEL AND PRE-STRESSING TENDONS.

- C. CONCRETE TEST SPECIMENS. D. STRUCTURAL STEEL MEMBERS AND WELD MATERIALS.
- E. SHEAR CONNECTORS AND HIGH STRENGTH BOLTS. F. MASONRY UNITS.
- G. SPECIMENS OF MORTAR, GROUT AND PRISMS. H. SHOTCRETE SPECIMENS.
- I. WELD QUALIFICATION TESTS. J. NON-DESTRUCTIVE TESTING.
- K. TORQUE TESTS. L. PULL TESTS

SPECIAL INSPECTION (OCCUPANCY CATEGORIES I, II, III) MASONRY CONSTRUCTION (TABLE 1704.5.1)

SPECIAL INSPECTION (OCCOPA	INCT CATEGOR	1L3 I, II, III) IV	ASUNKI CUNS	STRUCTION (TAI	SLE 1704.5.1)		
	SPECIAL INS	PECTION	SPECIAL	STRUCTURAL	REF	ERENCE FOR CRITE	RIA
			INSPECTOR	ORCEDVED		ACI 530/ASCE	ACI 530.1/ASCI
INSPECTION TASK	CONTINUOUS	PERIODIC	INSPECTOR	OBSERVER	CBC SECTION	5/TMS 402	6/TMS 602
construction begins, the following shall be verified to							
bliance:							
ortions of site-prepared mortar,		х	GSI				Art. 2.6A
truction of mortar joints.		х	GSI				Art. 3.3B
tion of reinforcement, connectors, prestressing		v	GSI				Art 24 264
ons and anchorages.		^	031				AIL 3.4, 3.0A
ressing technique.		х					Art. 3.6B
e and size of prestressing tendons and anchorages.		х					Art. 2.4B, 2.4H
on program shall verify:							
and location of structural elements.		х	GSI				Art3 3.3G
, size and location of anchors, including other details						Sec. 1.2.2(c)	
chorage of masonry to structural members, frames		х	GSI			21/ 316	
her construction.						2.1.4, 5.1.0	
ified size, grade and type of reinforcement.		х	GSI			Sec. 1.13	Art. 2.4, 3.4
ling of reinforcing bars	v					Sec. 2.1.10.7.2,	
ing of remoticing bars.	^					3.3.3.4(b)	
ection of masonry during cold weather (temperature		x			Sec. 2104.3,		Art 1 8C 1 8D
v 40°F) or hot weather (temperature above 90°F).		~			2104.4		AIL 1.00, 1.0D
cation and measurement of prestressing force.		x					Art. 3.6B
ting, the following shall be verified to ensure							
t space is clean.		х	GSI				Art. 3.2D
ment of reinforcement and connectors and							
ressing tendons and anchorages.		х	GSI			Sec. 1.13	Art. 3.4
ortions of site-prepared grout and prestressing grout							
nded tendons.		х	GSI				Art. 2.6B
ruction of mortar joints.		х	GSI				Art. 3.3B
nent shall be verified to ensure compliance with	м						4 1 9 5
nstruction document provisions.	X						Art. 3.5
ting of prestressing bonded tendons.	Х						Art. 3.6C
of any required grout specimens, mortar specimens	v				Sec. 2105.2.2.		Ant 1.6
ns shall be observed.	Ă				2105.3		Art. 1.4
with required inspection provisions of the							
documents and the approved submittals shall be		Х					Art. 1.5

REQUIRED VERIFICAT	TION AND INSPI	ECTION OF ST	EEL CONSTRUC	TION (TABLE 1	704.3)	
	SPECIAL INS	SPECTION	SPECIAL	STRUCTURAL	1	
VERIFICATION AND INSPECTION	CONTINUOUS	PERIODIC	INSPECTOR	OBSERVER	REFERENCED STANDARD	CBC REFERENCE
1. Material verification of high-strength bolts, nuts and washers:						
a.					Applicable ASTM material	
Identification markings to conform to ASTM standards		х	GSI		specs; AISC 360, Section	
specified in the approved construction documents.					A3.3	
b. Manufacturer's certificate of compliance required.		Х	GSI			
2. Inspection of high-strength bolting:						
a. Bearing-type connections.		x	GSI		AISC 360, Section M2.5	1704.3.3
b. Slip-critical connections.	х		GSI		71100 000, 0001011 11210	170 11515
Material verification of structural steel:						
a. Identification markings to conform to ASTM standards			GSI		ASTM A 6 or ASTM A 568	
specified in the approved construction documents.						1708.4
b. Manufacturer's certified mill test reports			GSI		ASTM A 6 or ASTM A 568	
4. Material verification of weld filler materials:						
 Identification markings to conform to AWS specification in the approximate construction documents. 					AISC 360, Section A3.5	
the approved construction documents.						
D. Manufacturer's certified of compliance required.	80.00400		80.03.45			10.00 M
a Structural steel						
1) Complete and partial penetration groove welds	×					
2) Multipass fillet welds	x					
3) Single-pass fillet welds $> 5/16''$	x				AWS D1.1	1704.3.1
 4) Single-pass fillet welds < 5/16" 		x	GSI			
5) Eloor and roof deck welds		x			AWS D1.3	
b. Reinforcing Steel:		~			1110 0 210	
 Verification of weldability of reinforcing steel other 						
than ASTM A 706		х				
 Reinforcing steel-resisting flexural and axial forces in 						
intermediate and special moment frames, and					AWS D1.4	at 10 M
boundary elements of special reinforced concrete	X				ACI 318: 3.5.2	
shearwalls and shear reinforcement.						
3) Shear reinforcement.	х		10-301-00			
Other reinforcing steel.	#0.0CM	Х	10.00.00			
Inspection of steel frame joint detail for compliance with		×				
approved construction documents:		~				
 Details such as bracing and stiffening. 			10.00 M	second on	and and a second	1704.3.2
b. Member locations.						
 Application of joint details at each connection. 	anarar					
Inspection of seismic-force-resisting systems and designated resisting systems.						
seismic systems:						
a. Structural steel:	v					
 Complete and partial penetration groove welds. Aultipage fillet welds. 	×					
2) Wultipass fillet weids. 2) Single page fillet weids $\geq E/16^{\circ}$	×				AISC 241	1707.2
$\frac{3}{2} = \frac{3}{2} = \frac{3}$	^	~			AI3C 341	1/0/.2
4) $\operatorname{Single-pass}$ milet weids $\leq 5/10$		v	651			
		^				

	REQUIRED VERFICATION AND INSPECTION OF SOILS							
	INSPECTION TASK	SPECIAL INSPECTOR	STRUCTURAL OBSERVER					
1.	Verify materials below footings are adequate to achieve the design bearing capacity.		x	GSI				
2.	Verify excavations are extended to proper depth and have reached proper material.		x	GSI				
3.	Perform classification and testing of controlled fill materials		x	GSI				
4.	Verify use of proper materials, densities and lift thicknesses during placement and compaction of controlled fill.	х		GSI				
5.	Prior to placement of controlled fill, observe subgrade and verify that site has been prepared properly.		x	GSI				

3.6 STRUCTURAL STEEL WELDING

3.6.1 THE SPECIAL INSPECTOR SHALL:

A. ASCERTAIN THAT ALL FABRICATION AND ERECTION BY WELDING IS PERFORMED IN ACCORDANCE WITH THE REQUIREMENTS OF THE APPROVED PLANS, SPECIFICATIONS, THE BUILDING CODE AND AWS STANDARDS.

B. VERIFY THAT ONLY MATERIALS AND PROCEDURES CONFORMING TO THE REQUIREMENTS OF AWS, AISC OR ASTM, AND SPECIFIED ON APPROVED PLANS ARE USED.

C. REVIEW ALL WELDING PROCEDURE SPECIFICATION (WPS) AS APPROVED AND FOUND SATISFACTORY BY THE DPR. VISUALLY INSPECT THE PREPARATIONS, WELDING PROCESS, ELECTRODES AND EQUIPMENT USED, FOR COMPLIANCE TO WPS.

D. VERIFY THAT INDIVIDUAL CERTIFICATION OF WELDERS, WELDING OPERATORS AND TACK WELDERS ARE CURRENT, AND IN ACCORDANCE WITH THE WORK TO BE PERFORMED. E. VISUALLY INSPECT ALL WELDS.

F. PERFORM AN INSPECTION OF THE STEEL FRAME TO VERIFY COMPLIANCE WITH THE DETAILS SHOWN ON THE APPROVED CONSTRUCTION DOCUMENTS, SUCH AS BRACING, STIFFENING MEMBER LOCATIONS & PROPER APPLICATION OF JOINT DETAILS AT EACH CONNECTION. 3.6.2 THE SPECIAL INSPECTOR SHALL PROVIDE CONTINUOUS INSPECTION FOR SHOP AND FIELD WELDING OF SPECIAL MOMENT-RESISTING STEEL FRAMES, OR ANY MEMBER OR CONNECTION THAT IS DESIGNED TO RESIST LOADS AND FORCES. CONTINUOUS INSPECTION ALSO INCLUDES 3/8 INCH AND LARGER FILLET WELDS, MULTI-PASS WELDS, GROOVE WELDS, WHERE SPECIFICALLY INDICATED ON DRAWINGS,

AND OTHER WELDS NOT LISTED IN 3.8.3. 3.8.3 PERIODIC INSPECTIONS ARE PERMITTED DURING WELDING OF THE FOLLOWING ITEMS, PROVIDED VISUAL INSPECTION IS CONDUCTED PRIOR TO COMPLETION AND/OR SHIPMENT OF SHOP WELDS:

A. SINGLE-PASS FILLET WELDS NOT EXCEEDING 5/16 IN (7.9mm). B. FLOOR AND ROOF DECK WELDING.

C. WELDED STUDS IN STRUCTURAL DIAPHRAGM OR COMPOSITE SYSTEMS.

D. COLD-FORMED STUDS AND JOISTS.

E. STAIR AND RAILING SYSTEMS.

F. ASTM A706 REINFORCING STEEL, NOT LARGER THAN NO. 5 BARS. 3.6.4 EXCEPT FOR SPECIAL MOMENT-RESISTING STEEL FRAMES, SPECIAL INSPECTIONS ARE NOT REQUIRED

WHERE THE WORK IS PERFORMED ON THE PREMISES OF A FABRICATOR REGISTERED AND APPROVED BY THE BUILDING OFFICIAL AND THE DPR TO PERFORM SUCH WORK WITHOUT SPECIAL INSPECTION PER SECTION 1704.3.

3.6.5 WHEN STRUCTURAL STEEL IS DESIGNATED AS PART OF THE SEISMIC-FORCE-RESISTING SYSTEM, THE TESTING CONTAINED IN THE QUALITY ASSURANCE PLAN SHALL BE AS REQUIRED BY AISC 341 AND THE ADDITIONAL REQUIREMENTS HEREIN. THE ACCEPTANCE CRITERIA FOR NON-DESTRUCTIVE TESTING SHALL BE AS REQUIRED IN AWS D1.1

A. COMPLETE JOINT PENETRATION GROOVE WELDS. B. PARTIAL PENETRATION GROOVE WELDS IN COLUMN SPLICES.

C. BASE METAL THICKER THAN 1-1/2 INCHES (38MM) WHEN SUBJECT TO THROUGH-THICKNESS WELD SHRINKAGE STRAINS.

D. OTHER NON-DESTRUCTIVE TESTING AS REQUIRED BY THE DPR

BASE MATERIAL THICHER THAN 1.5 INCHES (38 MIL), WHERE SUBJECT TO THROUGH THICKNESS WELD SHRINKAGE STRAINS, SHALL BE ULTRASONICALLY TESTING FOR DISCOUNTINUITIES BEHIND AND ADJACENT TO SUCH WELDS AFTER JOING COMPLETION. ANY MATERIAL DISCONTINUITIES SHALL BE ACCEPTED OR REJECTED ON THE BASIS OF ASTM A435 OR ASTM A898 (LEVEL 1 CRITERIA) AND CRITERIA AS ESTABLISHED BY THE REGISTERED DESIGN PROFESSIONAL(S) IN RESPONSIBLE CHARGE AND THE CONTRUCTION DOCUMENTS.

3.7 HIGH STRENGTH BOLTING

3.7.1 HIGH STRENGTH BOLTING SHALL BE INSTALLED IN ACCORDANCE WITH THE "SPECIFICATIONS FOR STRUCTURAL JOINTS USING ASTM A325 OR A490 BOLTS" AS APPROVED BY THE RESEARCH COUNCIL ON STRUCTURAL CONNECTIONS OF THE ENGINEERING FOUNDATION, UNLESS OTHERWISE NOTED ON THE APPROVED PLANS AND SPECIFICATIONS.

A. WHILE THE WORK IS IN PROGRESS, THE SPECIAL INSPECTOR SHALL DETERMINE THAT THE REQUIREMENTS OF 3.9.1 FOR BOLTS, NUTS, WASHERS AND PAINT; BOLTED PARTS, INSTALLATION AND TIGHTENING STANDARDS ARE MET.

B. THE SPECIAL INSPECTOR SHALL OBSERVE THE CALIBRATION PROCEDURES WHEN SUCH PROCEDURES ARE REQUIRED BY THE PLANS AND SPECIFICATIONS, AND SHALL MONITOR THE INSTALLATION OF BOLTS TO DETERMINE THAT ALL PLIES OF CONNECTED MATERIALS HAVE BEEN DRAWN TOGETHER AND THAT THE SELECTED PROCEDURE IS PROPERLY USED TO TIGHTEN ALL BOLTS.

C. FOR ALL BOLTED CONNECTIONS THAT ARE SPECIFIED TO BE SLIP CRITICAL OR SUBJECT TO AXIAL TENSION, THE SPECIAL INSPECTOR SHALL VERIFY THAT THE SPECIFIED PROCEDURES WERE FOLLOWED TO ACHIEVE THE PRETENSION SPECIFIED.

D. BOLTS IN CONNECTION, IDENTIFIED AS NOT BEING SLIP-CRITICAL NOR SUBJECT TO DIRECT TENSION NEED NOT BE INSPECTED FOR BOLT TENSION OTHER THAN TO ENSURE THAT THE PLIES OF THE CONNECTED ELEMENTS HAVE BEEN BROUGHT INTO SNUG CONTACT. E. PERIODIC INSPECTION FOR BOLTED CONNECTIONS MAY BE PERFORMED IN ACCORDANCE WITH

THE REQUIREMENTS OF SECTION 1701.6.2 OF THE CBC, OR AS DEFINED ON 3.7.1. 3.7.2 MONITORING OF BOLT INSTALLATION FOR PRETENSIONING IS PERMITTED TO BE PERFORMED ON A PERIODIC BASIS WHEN USING THE TURN-OF-NUT METHOD WITH MATCH MARKING TECHNIQUES, THE DIRECT TENSION INDICATOR METHOD OR THE ALTERNATE DESIGN FASTENER (TWIST-OF-BOLT) METHOD. JOINTS DESIGNATED AS SNUG TIGHT NEED BE INSPECTED ONLY ON A PERIODIC BASIS.

3.7.3 MONITORING OF BOLT INSTALLATION FOR PRETENSIONING USING THE CALIBRATED WRENCH METHOD OR THE TURN-OF-NUT METHOD WITHOUT MATCH MARKING SHALL BE PERFORMED ON A CONTINUOUS BASIS.

N/A

3.8	STRUCTURAL SEISMIC RESISTING MASONRY

3.8.1 TESTING AND VERIFICATION OF MASONRY MATERIALS AND ASSEMBLIES, PRIOR TO CONSTRUCTION, FOR THE LISTED OCCUPANCY CATEGORIES SHALL BE: A. 1708.1.3 - ENGINEERED MASONRY IN OCCUPANCY CATEGORY I, II, OR III.

	, ,
TABLE 1708.1.2	
LEVEL 1 QUALITY ASSURANCE	
MINIMUM TESTS AND SUBMITTALS	5

Certificates of compliance used in masonry construction.

Verification of f^rm and f^rAAC prior to construction, except where specifically exempted by the 2007 CBC.

B. 1708.1.4 - ENGINEERED MASONRY IN OCCUPANCY CATEGORY IV.

TABLE 1708.1.4 LEVEL 2 QUALITY ASSURANCE

MINIMUM TESTS AND SUBMITTALS

Certificates of compliance used in masonry construction.

Verification of f'_m and f'_{AAC} prior to construction, and every 5000 square feet during construction.

/erification of proportions of material in mortar and grout as delivered to the site.

TO BE COMPLETED BY PERMITTEE

AS SET FORTH IN CBC SECTION 1701.1, OWNER OR DPR, ACTING AS OWNER'S AGENT, SHALL EMPLOY ONE OR MORE SPECIAL INSPECTORS ("TESTING AGENCIES"), AND/OR STRUCTURAL OBSERVER, WHO SHALL PROVIDE INSPECTIONS/OBSERVATIONS DURING CONSTRUCTION, IN ADDITION TO REQUIRED INSPECTIONS PERFORMED BY THE BUILDING DIVISION PURSUANT TO CBC SECTION 109, FOR THE TYPES OF WORK SPECIFIED BY THE DPR. THE REQUIRED SIGNATURES OF THE OWNER, CONTRACTOR AND TESTING AGENCY ARE SUBMITTED TO THE BUILDING DIVISION FOR APPROVAL AS FOLLOWS (PERMITTEE SELECT AND INITIAL ONE OF THE FOLLOWING OPTIONS):

"ACKNOWLEDGEMENT" BELOW IS COMPLETED BEFORE A BUILDING PERMIT IS ISSUED; OR "ACKNOWLEDGEMENT" WILL BE COMPLETED AND SUBMITTED TO THE BUILDING DIVISION FOR

_____ APPROVAL BEFORE REQUESTING AN INSPECTION. I UNDERSTAND AND AGREE TO BE RESPONSIBLE FOR ANY DELAYS CAUSED BY FAILURE TO COMPLY TIMELY WITH THIS REQUIREMENT.

ACKNOWLEDGEMENT

CONTRACTOR SHALL BE RESPONSIBLE FOR PROPER NOTIFICATION (48 HOURS) TO THE SPECIAL INSPECTOR/TESTING AGENCY AND/OR STRUCTURAL OBSERVER WHEN THE ITEMS LISTED ON THIS SHEET ARE READY FOR INSPECTION. THE SPECIAL INSPECTOR/TESTING AGENCY AND/OR STRUCTURAL OBSERVER SHALL:

A. PROVIDE SITE VISITS CARRYING OFFICIAL IDENTIFICATION B. PERFORM TESTS, INSPECTIONS OR STRUCTURAL OBSERVATION DURING CONSTRUCTION, AND PROMPTLY NOTIFY CONTRACTOR OF DISCREPANCIES THAT REQUIRE CORRECTION, THEN, IF UNCORRECTED, NOTIFY THE BUILDING OFFICIAL.

BEFORE AN OCCUPANCY PERMIT CAN BE ISSUED: THE SPECIAL INSPECTOR/TESTING AGENCY AND/OR STRUCTURAL OBSERVER SHALL SUBMIT A FINAL SIGNED REPORT STATING THAT THE WORK REQUIRING SPECIAL INSPECTION OR STRUCTURAL OBSERVATION WAS, TO THE BEST OF THE SPECIAL INSPECTOR'S OR STRUCTURAL OBSERVER'S KNOWLEDGE, IN CONFORMANCE TO THE APPROVED PLANS AND SPECIFICATIONS AND THE APPLICABLE WORKMANSHIP PROVISIONS OF THE CBC.

OWNER SIGNATURE:	DATE:
CONTRACTOR SIGNATURE:	DATE:
SPECIAL INSPECTOR SIGNATURE:	DATE:
SPECIAL INSPECTOR SIGNATURE:	DATE:
TESTING AGENCY SIGNATURE:	DATE:
STRUCTURAL OBSERVER SIGNATURE:	DATE:
APPROVED BY BUILDING DIVISION:	DATE:

REQUIRED VERIFICATION AND INSPECTION OF WOOD CONSTRUCTION								
VERIFICATION AND INSPECTION	SPECIAL INS CONTINUOUS	PECTION PERIODIC	SPECIAL INSPECTOR	STRUCTURAL OBSERVER	REFERENCED STANDARD	CBC REFERENCE		
 High-load diaphragms utilizing multiple rows of nailing shall be inspected for: 								
 Wood structural panel sheathing for grade thickness shown on approved construction documents. 	80.00 G	х						
 Verify nominal size of framing members ad adjoining panel edges with approved construction documents. 		х						
 verify nail, or staple, diameter and length with approved construction documents. 		х						
 Verify number of fastener lines with approved construction documents. 		х						
 Verify spacing between fasteners in each line and at edge margins with approved building plans. 	01.00.00	х				8000		
 Field gluing operations of elements of seismic-force-resisting systems. 	х					1707.3		
3. Nailing, bolting, anchoring and other fastening of components within the seismic-force-resisting system, where the fastener spacing of the sheathing is less than or equal to 4"o.c., including, but not limited to: wood shearwalls, wood diaphragms, drag struts, braces, shear panels and holdowns.		х				1707.3		
 Pre-fabricated shearwalls (steel or wood). 		Х						
N/A	N/A							

		SPECIAL II	NSPECTION		
	INSPECTION TASK	CONTINUOUS	PERIODIC	SPECIAL INSPECTOR	STRUCTURAL OBSERVER
1.	Verify pile materials, sizes and lengths comply with the requirements.	х			
2.	Determine capacities of test piles and conduct additional load tests, as required.	х			
3.	Observe driving operations and maintain complete and accurate records for each pile.	Х			
4.	Verify placements locations and plumbness, confirm type and size of hammer, record number of blows per foot of penetration, determine required penetrations to achieve design capacity, record tip and butt elevations and document any pile damage.	х			
5.	For steel piles, perform additional inspections in accordance with Section 1704.3.	10.00 M	х		
6.	For concrete piles and concrete-filled piles, perform additional inspections in accordance with Section 1704.4.	40.00 M	х		
7.	For specialty piles, perform additional inspections as determined by the registered design professional in responsible charge.	900 M	x		
8.	For augered uncased piles and caisson piles, perform inspections in accordance with Section 1704.9.		х		

SPECIAL INSPECTOR(S)/STRUCTURAL OBSERVER KEY = GSI Soils, Inc., 141 Suburban Rd # D1, San Luis Obispo, CA (805) 543-5493

 Shawn Pierce Engineering, 277 N. Beechnut Ave, Nipomo, CA (805) 801-9385 SPECIAL INSPECTOR TO BE DETERMINED AND APPROVED BY GOVERNING BUILDING AGENCY AND ENGINEER OF RECORD

All items referencing either of the firms noted above shall have inspections/observation peformed. Wheter the inspection/observation is required to be continuous or periodic is indicated by an 'X. Where no initials are shown, inspection/observation of those items is not required.





 FOR TYPICAL HOLDOWN TO FOUNDATION, SEE DETAIL 31/51.20. • FOR INTERSECTING REBAR, SEE DETAIL 12/51.20. ALL WOOD THAT COMES INTO DIRECT CONTACT WITH CONCRETE SHALL BE PRESSURE TREATED DOUGLAS EIR-LARCH LUMBER. FOUNDATION ANCHOR BOLTS SHALL BE $\frac{5}{6}$ " Φ with 3"X3"X0.229" PLATE WASHERS EMBEDDED AS FOLLOWS: $4-\frac{1}{2}$ " MIN. INTO FIRST POUR AT 2-POUR CONDITION TOPS OF BOLTS SHALL PROJECT 1" MIN. ABOVE TOP OF WOOD SILL PLATES

FOUNDATION NOTES

- LOCATE BOLTS AT 6'-0" O.C. MAX. AT TYPICAL SILL PLATE WHERE SHEAR WALL DOES NOT OCCUR. AT SHEAR WALL LOCATION, SEE "SHEAR WALL SCHEDULE" FOR REQUIRED SPACINGS. THERE SHALL BE 2 BOLTS MIN. PER PIECE, 12" MAX, 4" MIN. FROM ALL ENDS/SPLICES. • CONCRETE SLABS SHALL BE 5 $\frac{1}{2}$ " THICK WITH #4 HORIZONTAL BARS AT 24" O.C. EACH DIRECTION, AT MID-DEPTH. AT SLABS WHERE MOISTURE VAPOR TRANSMITTED FROM THE SOIL WOULD BE UNDESIRABLE, A SAND CUSHION SHALL BE INSTALLED PER NOTE 13 OF
- "FOUNDATION NOTES" OF THE STRUCTURAL NOTE SHEETS. INSTALL CRACK CONTROL JOINTS PER DETAIL 13/S1.20 AT 10' O.C. MAX. EACH DIRECTION

- BE IN-PLACE AND TIED, PRIOR TO PLACING CONCRETE
- AND INSPECTIONS. • AT ALL TYPICAL FOOTING / GRADE BEAM POUR BREAKS, EXTEND CONTINUOUS HORIZONTAL REINFORCING 36" MIN. INTO NEXT POUR AND INSTALL A 1 $\frac{1}{2}$ " DEEP x 7 $\frac{1}{4}$ " WIDE x
- 8" TALL KEY CENTERED ON END. • ALL METAL BUILDING ANCHOR BOLTS SHALL BE $\frac{3}{4}$ " Φ F1554 GRADE 36 HEAVY HEX HEAD BOLTS WITH 12" MIN EMBEDMENT BELOW TOP OF PAD FOOTING AND 3"
- PROJECTION ABOVE TOR OF SLAB SEE THE METAL BUILDING ANCHOR BOLT PLANS FOR EXACT LOCATIONS OF ANCHOR BOLT LOCATIONS. LOCATE (1) #4 HAIRPIN AT EACH PAIR OF ANCHOR BOLTS,
- PER DETAIL 22/S1.20 • PRIOR TO THE CONTRACTOR REQUESTING A BUILDING DEPARTMENT FOUNDATION INSPECTION, THE SOILS ENGINEER OF RECORD SHALL ADVISE THE BUILDING OFFICIAL IN WRITING THAT:
- A. THE BUILDING PAD WAS PREPARED IN ACCORDANCE WITH THE SOILS REPORT. B. THE UTILITY TRENCHES HAVE BEEN PROPERLY
- BACKFILLED AND COMPACTED. C. THE FOUNDATION EXCAVATIONS COMPLY WITH THE INTENT OF THE SOILS REPORT.

NOTE: ALL DIMENSIONS TO BE VERIFIED WITH ARCHITECT OF RECORD

PLUMBING FIXTURE LOCATIONS SHOWN ARE CONCEPTUAL AND HAVE BEEN PROVIDED BY OTHERS. ALL LOCATIONS SHOWN OCCUR ABOVE FINISH FLOOR AND SHALL BE VERIFIED WITH ARCHITECT OF RECORD.

STUDWALL OR WIDTH OF BEAM - WHICHEVER IS GREATER

- (B) 4x POST MATCH DEPTH OF STUDWALL OR WIDTH OF BEAM WHICHEVER IS GREATER
- (C) 6X POST MATCH DEPTH OF STUDWALL OR WIDTH OF
- BEAM WHICHEVER IS GREATER 4x KING STUD W/ CONNECTION PER SHEAR SCHEDULE -STUD TO MATCH DEPTH OF WALL
- 6X KING STUD W/ CONNECTION PER SHEAR SCHEDULE - STUD TO MATCH DEPTH OF MALL

NOTE: AT ALL UPPER FLOOR POST LOCATIONS, INSTALL SOLID FILLER BLOCK WITHIN FLOOR DEPTH IN-LINE WITH POST ABOVE AND BELOW

- HDU2-SDS2.5 WITH $\frac{5}{6}$ " Φ A307 GRADE C ALL THREAD ROD EPOXIED INTO (E) FOOTING W/ SIMPSON "SET-XP" EPOXY, SEE DETAIL 11/S1.21. SPECIAL INSPECTION IS REQUIRED.
- HDU2-SDS2.5 WITH $\frac{5}{6}$ " Φ A307 GRADE C ALL THREAD ROD EPOXIED INTO (E) FOOTING W/ SIMPSON "SET-XP" EPOXY, SEE DETAIL 24/S1.21. SPECIAL INSPECTION IS REQUIRED.
- HDU2-SDS2.5 WITH 5%"Φ F1554 GRADE 36 HEAVY HEX BOLT, SEE DETAIL 34/51.21.

PAD FOOTING KEY

- $\langle A \rangle$ 32" 5Q x 18" THICK CONCRETE PAD FOOTING W/ (3) - #5 EA MAY (B) 36" SQ x 18" THICK (MIN, OR DEPTH OF _ ___ __ __ __ __ ADJACENT FOOTING, WHICHEVER IS DEEPER) CONCRETE PAD FOOTING W/(3) - #5 EA WAY C 51" x 33" x 18" THICK CONCRETE PAD FOOTING w/(3) #5 EA WAY, TOP AND BOTTOM, SEE DETAIL 12/51.21 $\langle D \rangle$ 27" SQ x 18" THICK (MIN, OR DEPTH OF ADJACENT FOOTING, WHICHEVER IS DEEPER) CONCRETE PAD FOOTING W/ (2) #5 EA WAY \sim 24" SQ X 18" THICK CONCRETE PAD FOOTING
- W/ (2) #5 EA MAY $\langle F \rangle$ 15 $\frac{1}{2}$ " X 24" X 18" THICK CONCRETE PAD FOOTING W/ (2) #5 EA WAY

- SHEARWALL PER SHEAR SCHEDULE
- SHEARWALL LENGTH
- = DETAIL TAG

 $/ \times$

= 8" SOLID GROUTED CMU WAINSCOTING WALL. FOR REINFORCING, SEE DETAILS 14/51.20 \$ 24/51.20

CONTINUOUS FOOTING SCHEDULE

(E) CONTINUOUS FOOTING

24" WIDE x 18" THICK FTG., 24" MIN INTO COMPACTED SOIL, W/ (2) #5 CONT HORIZ BARS AT TOP & BTM AT CMU WAINSCOT SIDEWALLS, SEE DETAIL 14/S1.20

24" WIDE x 18" THICK FTG., 24" MIN INTO COMPACTED SOIL, W/ (2) #5 CONT HORIZ BARS AT TOP & BTM AT CMU WAINSCOT SIDEWALLS, SEE DETAIL 24/S1.20

18" WIDE X 24" THICK FTG INTO COMPACTED SOIL W/ (2) #5 CONT HORIZ BAR AT TOP & BTM, SEE DETAIL 23/S1.20

- SOLE PLATE CONNECTION TO RIM 5/8" DIA. ANCHOR BOLTS W/ 3"5Qx0.229" BOARD/BLOCKING^{10,12}
 NING
 PLATE WASHERS⁶, UNO

 RIM BOARD OR
 SILL PLATE
 ANCHOR BOLT
 CONNECTOR BLK'G (MIN) EDGE FIELD SPACIN 8^d AT 6"o.c. 8^d AT 12"o.c. RBC (ROOF BOUNDARY CLIP) AT 24"o.c.; A35 %" CDX PLYWOOD (24/0), APPLIED TO 2X PT DF 16^d AT 6"0.c.^{1,2} 60"0.C. ONE SIDE, BLOCK ALL EDGES AT 24"0.C.; OR LTP4 AT 24"0.C. RBC (ROOF BOUNDARY CLIP) AT 24"0.C.; A35 $\frac{3}{8}$ " CDX PLYWOOD (24/0), APPLIED TO 16^d AT 4"0.c. ^d AT 4"0.c. 8^d AT 12"0.c. 2X PT DF 45"*o.*c. AT 24"0.C.; OR LTP4 AT 24"0.C. STAGGERED ONE SIDE, BLOCK ALL EDGES ¾" LSL SDS2541 3X DF OR 2X PT DF 15"*o.*c 3%" CDX PLYWOOD (24/0), APPLIED TO REC (ROOF BOUNDARY CLIP) AT 24"0.C.: AS SCREWS AT ^d AT 3"0.c. 8^d AT 12"0.c. AT 24"0.C.; OR LTP4 AT 24"0.C. ONE SIDE, BLOCK ALL EDGES 3X PT DF 30"o.c. 12"o.c. 3 ½" LSL 3X DF OR SDS2541 2X PT DF 12"*o.*c. 3C (ROOF BOUNDARY CLIP) AT 24"0.C.; A35 $\sqrt[6]{8}$ " CDX PLYWOOD (24/0), APPLIED TO SCREWS AT 8^d AT 2"0.c. 8^d AT 12"0.c. AT 24"0.c.; OR LTP4 AT 24"0.c. ONE SIDE, BLOCK ALL EDGES 3X PT DF 24"o.c. 9"0.0 3 ½" LSL 5DS2560 3X DF OR 3/8" CDX PLYWOOD (24/0), APPLIED TO RBC (ROOF BOUNDARY CLIP) AT 24"0.C.; A35 3X PT DF 20"o.c. SCREMS AT 8^d AT 4"0.c. 8^d AT 12"0.c. AT 24"0.C.; OR LTP4 AT 24"0.C. BOTH SIDES, BLOCK ALL EDGES^{4,5} 8"0.C. 3 ½" LSL 3x DF SDS25600

 ³/₈" CDX PLYWOOD (24/0), APPLIED TO BOTH SIDES, BLOCK ALL EDGES^{4,5}
 8^d AT 3"o.c.
 8^d AT 12"o.c.
 REC (ROOF BOUNDARY CLIP) AT 24"o.c.; A35 AT 24"o.c.; OR LTP4 AT 24"o.c.; A35 AT 24"o.c.; OR LTP4 AT 24"o.c.
 3x
 5D525900 5CREM6 AT
 0R
 3x PT DF
 16"o.c.
 980
 1370

 NOTES TO SHEAR WALL SCHEDULE
- ALL NAILS TO BE COMMON:
- 8^d (0.131" x 2 ½"), 10^d (0.148" x 3"), 16^d (0.162" x 3 ½") 2) GALVANIZED NAILS SHALL BE HOT DIPPED OR TUMBLED 3) RIM BOARD/BLOCKING TRANSFERS NOTED SHALL BE FULL LENTH OF WALL LINE, NOT JUST OVER THE SHEAR WALL
- 4) OFFSET VERTICAL JOINTS BY ONE STUD SPACE (MIN) ON OPPOSITE FACE OF WALL, PANEL END STUDS TO BE 3x (MIN)
- 5) FOUNDATION SILL PLATES AND ALL FRAMING MEMBERS AT ADJOINING PANEL EDGES SHALL BE 3" NOMINAL OR WIDER AND NAILS SHALL BE STAGGERED IN ALL CASES 6) THE HOLE IN THE PLATE WASHER IS PERMITTED TO BE DIAGONALLY SLOTTED WITH A WIDTH OF 13/16" AND A LENGTH OF 1 %", PROVIDED A STANDARD CUT WASHER IS PLACED BETWEEN THE PLATE
- WASHER AND THE NUT
- 7) ALL NAILING SHALL BE FINISHED OFF BY HAND HAMMERING TO ENSURE NAILS ARE DRIVEN FLUSH TO FACE OF PLMOOD. OVERDRIVEN NAILING MAY REQUIRE ENTIRE PANEL TO BE REMOVED AND REPLACED UPON OBSERVATION
- 8) $\frac{3}{8}$ " APA-RATED OSB SHEATHING (SPAN RATING = 24/0) MAY SUBSTITUTE CDX PLYWOOD 9) PANELS MAY BE INSTALLED EITHER HORIZONTALLY OR VERTICALLY, PROVIDED THE WALL FRAMING IS SPACED NO GREATER THAN 16"0.C.

10) MAXIMUM FLOOR SHEATHING THICKNESS IS 1" 11) PANEL EDGES SHALL NOT ADJOIN AT SOLE PLATE 12) NAILING ON NARROW FACE SHALL EXCEED SPACING SHOWN BELOW

		CLOSEST ON CENTER	SPACING PER ROM	N					
NAIL SIZE	1 ¾"	з 1⁄2"		PARALI AM PGI					
	TIMBERSTRAND LSL	TIMBERSTRAND LSL		FARALLAM FSL					
8 ^d (0.131" x 2 ½")	3"	3"	3"	3"					
10 ^d (0.148" x 3")	4"	3"	4"	4"					
16 ^d (0.162" x 3 ½") 6"		3 ½"	8"	6"					
* IF MORE THAN ONE ROW OF NAILS IS USED. THE ROWS MUST BE OFFSET AT LEAST 1/4" AND STAGGERED									











POST KEY:

- (A) DOUBLE 2X STUD/TRIMMER MATCH DEPTH OF STUDWALL OR WIDTH OF BEAM - WHICHEVER IS GREATER
- (B) 4x POST MATCH DEPTH OF STUDWALL OR WIDTH OF
- BEAM WHICHEVER IS GREATER
- C 6X POST MATCH DEPTH OF STUDWALL OR WIDTH OF BEAM - WHICHEVER IS GREATER
- 4X KING STUD W/ CONNECTION PER SHEAR SCHEDULE -STUD TO MATCH DEPTH OF WALL
- (E) 6x KING STUD W/ CONNECTION PER SHEAR SCHEDULE - STUD TO MATCH DEPTH OF WALL

NOTE: AT ALL UPPER FLOOR POST LOCATIONS, INSTALL SOLID FILLER BLOCK WITHIN FLOOR DEPTH IN-LINE WITH POST ABOVE AND BELOW

NOTE:

ALL DIMENSIONS TO BE VERIFIED WITH ARCHITECT OF RECORD

PLUMBING FIXTURE LOCATIONS SHOWN ARE CONCEPTUAL AND HAVE BEEN PROVIDED BY OTHERS. ALL LOCATIONS SHOWN OCCUR ABOVE FINISH FLOOR AND SHALL BE VERIFIED WITH ARCHITECT OF RECORD.

HOLDOWN KEY:

- $\langle A \rangle$ HDU2-SDS2.5 WITH ⅔"Ф A307 GRADE C ALL THREAD ROD EPOXIED INTO (E) FOOTING W/ SIMPSON "SET-XP" EPOXY, SEE DETAIL 11/S1.21. SPECIAL INSPECTION IS REQUIRED. HDU2-SDS2.5 WITH $\frac{5}{8}$ " Φ A307 GRADE C ALL
- THREAD ROD EPOXIED INTO (E) FOOTING W/ SIMPSON "SET-XP" EPOXY, SEE DETAIL 24/51.21. SPECIAL INSPECTION IS REQUIRED.
- = HDU2-SDS2.5 WITH 5/6"Φ F1554 GRADE 36 HEAVY $\langle c \rangle$ HEX BOLT, SEE DETAIL 34/S1.21.
- PAD FOOTING KEY
- (A) 32" SQ x 18" THICK CONCRETE PAD FOOTING W/ (3) - #5 EA MAY
- 36" SQ X 18" THICK (MIN, OR DEPTH OF $\langle B \rangle$ ADJACENT FOOTING, WHICHEVER IS DEEPER) CONCRETE PAD FOOTING W/ (3) - #5 EA WAY
- C 51" x 33" x 18" THICK CONCRETE PAD FOOTING W/(3) #5 EA WAY, TOP AND BOTTOM, SEE DETAIL 12/51.21 $\langle D \rangle$ 27" SQ x 18" THICK (MIN, OR DEPTH OF ADJACENT FOOTING, WHICHEVER IS DEEPER)
- CONCRETE PAD FOOTING W/ (2) #5 EA WAY $\langle E \rangle$ 24" SQ x 18" THICK CONCRETE PAD FOOTING W/ (2) #5 EA MAY
- 15 $\frac{1}{2}$ " X 24" X 18" THICK CONCRETE PAD FOOTING W/ (2) #5 EA WAY





LEGEND							SHEAR WALL SC	CHEDU	LE				
	=	DENOTES SHEARWALL	MARK	SHEATHING ^{8,9}	NAIL	NG ^{1,2,7}	RIM BOARD/BLOCKING TRANSFI	ER TO	SOL	E PLATE CONNEC BOARD/BLOCK	TION TO RIM KING ^{10,12}	5%" DIA. AN W/ 3"S PLATE WA	CHOR BOLTS QXO.229" SHERS ⁶ , UNO
\wedge				EDGE	FIELD	DOUBLE TOP FLATE	, i	SOLE CONNECTOR RIM BOARD OR SILL F	SILL PLATE (MIN)	ANCHOR BOLT SPACING			
\land	=	SHEARWALL PER SHEAR SCHEDULE	1	3/8" CDX PLYWOOD (24/0), APPLIED TO ONE SIDE, BLOCK ALL EDGES	8 ^d AT 6"0.c.	8 ^d AT 12"0.c.	RBC (ROOF BOUNDARY CLIP) AT 24 AT 24"0.C.; OR LTP4 AT 24"0	4"0.c.; A35 5.c.	2x	16 ^d AT 6"0.c. ^{1,2}	2x DF OR 1 ³ 4" LSL	2X PT DF	60°0.c.
×'-×"	=	SHEARWALL LENGTH	2	³ /s" CDX PLYWOOD (24/0), APPLIED TO ONE SIDE, BLOCK ALL EDGES	8 ^d AT 4"0.c.	8 ^d AT 12"0.c.	RBC (ROOF BOUNDARY CLIP) AT 24 AT 24"0.C.; OR LTP4 AT 24"0	4"0.c.; A35 D.c.	2x	16 ^d AT 4"0.c. ^{1,2} STAGGERED	2x DF OR 1 ³ 4" LSL	2X PT DF	45"o.c.
(vv			з	³ /8" CDX PLYWOOD (24/0), APPLIED TO ONE SIDE, BLOCK ALL EDGES	8 ^d AT 3"0.c.	8 ^d AT 12"0.c.	RBC (ROOF BOUNDARY CLIP) AT 24 AT 24"0.C.; OR LTP4 AT 24"0	4"0.c.; A35 0.c.	2x	SDS25412 SCREWS AT 12"0.c.	3x DF OR 3 ½" LSL	2X PT DF 3X PT DF	15"0.c. 30"0.c.
×× ××	=	DETAIL TAG	4	³ /8" CDX PLYWOOD (24/0), APPLIED TO ONE SIDE, BLOCK ALL EDGES	8 ^d AT 2" <i>o</i> .c.	8 ^d AT 12"0.c.	RBC (ROOF BOUNDARY CLIP) AT 24 AT 24"0.C.; OR LTP4 AT 24"0	4"0.c.; A35 5.c.	2x	SDS25412 SCREWS AT 9"0.c.	3x DF OR 3 ½" LSL	2X PT DF 3X PT DF	12"0.c. 24"0.c.
	_		5	³ /8" CDX PLYWOOD (24/0), APPLIED TO BOTH SIDES, BLOCK ALL EDGES ^{4,5}	8 ^d AT 4"0.c.	8 ^d AT 12"0.c.	RBC (ROOF BOUNDARY CLIP) AT 24 AT 24"0.C.; OR LTP4 AT 24"0	4"0.c.; A35 0.c.	Эх	SDS25600 SCREWS AT 8"0.c.	3x DF OR 3 ½" LSL	3x PT DF	20"o.c.
¥ <u>////</u> Д	4 =	8" SOLID GROUTED CMU WAINSCOTING WALL. FOR REINFORCING, SEE DETAILS 14/51 20 # 24/51 20	6	³ / ₈ ° CDX PLYWOOD (24/0), APPLIED TO BOTH SIDES, BLOCK ALL EDGES ^{4,5}	8 ^d AT 3"0.c.	8 ^d AT 12"0.c.	RBC (ROOF BOUNDARY CLIP) AT 24 AT 24"0.C.; OR LTP4 AT 24"0	4"0.c.; A35 D.c.	Зx	SDS25600 SCREMS AT 6"0.c.	3X DF OR 3 ½" LSL	3X PT DF	16"0.c.
	5 FC	DOTING SCHEDULE	NOTES TO S 1) ALL NAIL 2) GALVAN	HEAR WALL SCHEDULE IS TO BE COMMON: 8 ^d (0.181" x 2 ¹ / ₂ "), 10 ^d (0.148" x 3"), 16 ^d (0.16 2ED NAILS SHALL BE HOT DIPPED OR TUMBLI	2" x 3 ½") ED		10) MAXIM 11) PANEL 12) NAILIN	1UM FLOOR 1 _ EDGES SHA IG ON NARRI	SHEATHI ALL NOT	NG THICKNESS IS ADJOIN AT SOLI E SHALL EXCEED	1" E PLATE SPACING SHOWN	BELOW	
			3) RIM BOA	RD/BLOCKING TRANSFERS NOTED SHALL BE	FULL LENTH OF	MALL LINE, NO	DT JUST OVER				CLOSEST ON CEN	TER SPACING P	ER ROW

- 3) RIM BOARD/BLOCKING TRANSFERS NOTED SHALL BE FULL LENTH OF WALL LINE, NOT JUST OVER THE SHEAR WALL
- 4) OFFSET VERTICAL JOINTS BY ONE STUD SPACE (MIN) ON OPPOSITE FACE OF WALL, PANEL END STUDS TO BE 3X (MIN)
- 5) FOUNDATION SILL PLATES AND ALL FRAMING MEMBERS AT ADJOINING PANEL EDGES SHALL BE 3" NOMINAL OR WIDER AND NAILS SHALL BE STAGGERED IN ALL CASES
- 6) THE HOLE IN THE PLATE WASHER IS PERMITTED TO BE DIAGONALLY SLOTTED WITH A WIDTH OF 13/16" AND A LENGTH OF 1 %,", PROVIDED A STANDARD CUT WASHER IS PLACED BETWEEN THE PLATE WASHER AND THE NUT

7) ALL NAILING SHALL BE FINISHED OFF BY HAND HAMMERING TO ENSURE NAILS ARE DRIVEN FLUSH TO FACE OF PLWOOD. OVERDRIVEN NAILING MAY REQUIRE ENTIRE PANEL TO BE REMOVED AND REPLACED UPON OBSERVATION

8) $\frac{3}{8}$ " APA-RATED OSB SHEATHING (SPAN RATING = 24/0) MAY SUBSTITUTE CDX PLYWOOD 9) PANELS MAY BE INSTALLED EITHER HORIZONTALLY OR VERTICALLY, PROVIDED THE WALL FRAMING IS SPACED NO GREATER THAN 16"0.C.

= 5+

(E) CONTINUOUS FOOTING

24" WIDE X 18" THICK FTG., 24" MIN INTO COMPACTED SOIL, W/ (2) #5 CONT HORIZ BARS AT TOP & BTM AT CMU WAINSCOT SIDEWALLS, SEE DETAIL 14/S1.20

24" WIDE x 18" THICK FTG., 24" MIN INTO COMPACTED SOIL, W/ (2) #5 CONT HORIZ BARS AT TOP & BTM AT CMU WAINSCOT SIDEWALLS, SEE DETAIL 24/S1.20

> 18" WIDE X 24" THICK FTG INTO COMPACTED SOIL W/ (2) #5 CONT HORIZ BAR AT TOP \sharp BTM, SEE DETAIL 23/S1.20

(0.131" x 2 ½") 0^d (0.148" x 3")

NAIL SIZE

1 34"





1 ¾" 3 ½" TIMBERSTRAND LSL TIMBERSTRAND LSL PARALLAM PSL







CONTINUOUS FOOTING SCHEDULE							
<u>}</u>	(E) CONTINUOUS FOOTING						
<u> </u>	24" WIDE X 18" THICK FTG., 24" MIN INTO COMPACTED SOIL, $W/(2)$ #5 CONT HORIZ BARS AT TOP & BTM AT CMU WAINSCOT SIDEWALLS, SEE DETAIL 14/S1.20						
	24" WIDE X 18" THICK FTG., 24" MIN INTO COMPACTED SOIL, W/ (2) #5 CONT HORIZ BARS AT TOP & BTM AT CMU WAINSCOT SIDEWALLS, SEE DETAIL 24/51.20						
 	18" WIDE X 24" THICK FTG INTO COMPACTED SOIL W/ (2) #5 CONT HORIZ BAR AT TOP & BTM, SEE DETAIL 23/S1.20						
PAD FO	OTING KEY						
A 32" ≤ ₩/ (3)	SQ X 18" THICK CONCRETE PAD FOOTING 3) - #5 EA WAY						
B 36" ADJ CON	SQ X 18" THICK (MIN, OR DEPTH OF IACENT FOOTING, WHICHEVER IS DEEPER) ICRETE PAD FOOTING W/ (3) - #5 EA WAY						
(2) (2)	< 33" x 18" THICK CONCRETE PAD FOOTING 3) #5 EA WAY, TOP AND BOTTOM, SEE AIL 12/S1.21						
$\begin{array}{c} \textcircled{D} \\ 27" SQ \times 18" THICK (MIN, OR DEPTH OF \\ ADJACENT FOOTING, WHICHEVER IS DEEPER) \\ CONCRETE PAD FOOTING W/(2) #5 EA WAY$							
E 24" w/ (.	SQ X 18" THICK CONCRETE PAD FOOTING 2) #5 EA WAY						
F 15 ½	2" X 24" X 18" THICK CONCRETE PAD ΣΤΙΝG W/ (2) #5 EA WAY						







RECORD

FOR INFORMATION NOT SHOWN HERE, SEE SHEET 51.10

CONTINUOUS FOOTING SCHEDULE
(E) CONTINUOUS FOOTING
24" WIDE X 18" THICK FTG., 24" MIN INTO COMPACTED SOIL, W/ (2) #5 CONT HORIZ BARS AT TOP & BTM AT CMU WAINSCOT SIDEWALLS, SEE DETAIL 14/51.20
24" WIDE X 18" THICK FTG., 24" MIN INTO COMPACTED SOIL, W/ (2) #5 CONT HORIZ BARS AT TOP & BTM AT CMU WAINSCOT SIDEWALLS, SEE DETAIL 24/51.20
18" WIDE X 24" THICK FTG INTO COMPACTED SOIL W/ (2) #5 CONT HORIZ BAR AT TOP & BTM, SEE DETAIL 23/51.20
PAD FOOTING KEY
\overrightarrow{A} 32" 5Q x 18" THICK CONCRETE PAD FOOTING w/ (3) - #5 EA WAY
B 36" SQ X 18" THICK (MIN, OR DEPTH OF ADJACENT FOOTING, WHICHEVER IS DEEPER) CONCRETE PAD FOOTING W/ (3) - #5 EA WAY
\leftarrow 51" x 33" x 18" THICK CONCRETE PAD FOOTING w/ (3) #5 EA WAY, TOP AND BOTTOM, SEE DETAIL 12/S1.21
 27" SQ x 18" THICK (MIN, OR DEPTH OF ADJACENT FOOTING, WHICHEVER IS DEEPER) CONCRETE PAD FOOTING W/ (2) #5 EA WAY
$ \left\{ \begin{array}{c} E \\ W/(2) \# 5 EA WAY \end{array} \right\} $
F 15 ½" X 24" X 18" THICK CONCRETE PAD FOOTING W/ (2) #5 EA WAY

SCALE: 1/32" = 1'-0"



N

X

A



г		
	51 NOT USED 51.21	(41 NOT USED 51.21)
	52 NOT USED	42 NOT USED
	51.21	(51.21)
	53 NOT USED 51.21	43 NOT USED 51.21
	54 NOT USED	(44) NOT USED
	51.21	51.21





STRUCTURAL KEY NOTES:

1. 11 1/2" TJI 210 (MIN) AT 24"0.C. WITH HU2.1/11 HANGERS (WEB STIFFENERS REQUIRED) OR ITS2.06/11.88 HANGERS.

SCALE: 3/32" = 1'-0"

- 2. (E) FLOOR JOISTS.
- 3. 5 $\frac{1}{4}$ " x 11 $\frac{1}{6}$ " 2.0E PSL (MIN) W/ HGLTV5.511x0SR(L) (MIN) HANGERS, WHERE APPLICABLE. IF STEEL BEAM OPTION IS USED FOR BEAM ON LINE 3, USE SAME HGLTV HANGER WITH H $_1$ = 9 $\frac{3}{6}$ ".
- 4. 7" x 11 $\frac{7}{6}$ " 2.0E PSL (MIN) W/ GLTV411.88-2 HANGERS WHERE APPLICABLE.
- 5. 7" x 18" 2.0E PSL (MIN) OR W12x35 A36 STEEL BEAM.
- 6. HSS $6x6x_{16}^{3}$ COLUMN W/ ECCOQ7 $\frac{1}{8}$ -6 POST CAP.
- 7. ST6236 STRAP AROUND OUTSIDE EDGE OF CORNER CONNECTION. INSTALL EQUAL LENGTHS OF THE STRAP ON EACH BEAM. STRAP NOT REQUIRED IF STEEL BEAM OPTION FOR LINE 3 IS USED.
- 8. MSTI26 INSTALLED TO FACE OF (N) FLOOR BEAM AND FACE OF (E) RIM BOARD WITH EQUAL LENGTHS APPLIED TO BEAM AND RIM. IF RIM BLOCKING WAS USED, CONTACT EOR FOR STRAPPING OPTION.
- 9. (N) 6x6 DF#2 POST (MIN) WITH ECCQ7.1-6 POST CAP. CAP STRAPS MAY "STRADDLE" OVER (E) DOUBLE TOP PLATE
- 10. BREAK (E) RIM BOARD TO ALLOW (N) FLOOR BEAM FULL BEARING ON (E) WALL
- 11. (E) COLUMN
- 12. 18" RED I-65 FLOOR JOISTS AT 16"0.C. WITH MIU2.56/18 HANGERS WHERE APPLICABLE
- 13. 5 $\frac{1}{4}$ " x 11 $\frac{1}{6}$ " 2.0E PSL HEADER
- 14. 5 $\frac{1}{4}$ " x 16" 2.0E PSL HEADER
- 15. 6x10 DF#2 (MIN)
- 16. (E) 5 $\frac{1}{4}$ " X 9 $\frac{1}{4}$ " 2.0E PSL HEADER

- 17. (E) MBHA5.50/9.25 HANGER
- 18. 6x8 DF#2 HEADER (MIN)
- 19. 5 $\frac{1}{4}$ " x 11 $\frac{1}{4}$ " 2.0E PSL (MIN) FLUSH WITH TOP OF FLOOR JOISTS
- 20. 2x8 DF#2 FLOOR JOISTS AT 16"0.c. WITH LUS28 HANGERS OVER HVAC AREA
- 21. 1 $\frac{3}{4}$ " x 18" 1.9E LVL HEADOUT BEAM WITH MIU1.81/18 HANGER AT EACH END
- 22. DBL 1 $\frac{3}{4}$ " x 18" 1.9E LVL BEAM WITH HU416 HANGER, WHERE REQUIRED
- 23. DBL 1 $\frac{3}{4}$ " x 18" 1.55E LSL TIMBERSTRAND STAIR/LANDING SUPPORT BEAM
- 24. 4x8 DF#2 LANDING SUPPORT BEAM (MIN)
- 25. 4x4 DF#2 POST WITH CCQ44SDS2.5 TO UNDERSIDE OF FB-8 AND INVERTED ECCQ44SDS2.5 TO TOP OF FB-7, SEE DETAIL 13/52.21
- 26. (3) 1 $\frac{3}{4}$ " x 14" 1.55E LSL TIMBERSTRAND STAIR STRINGERS ACROSS 48" MAX STAIR WIDTH WITH INTERMEDIATE SUPPORT WALL INSTALLED AS NECESSARY TO ACCOMMODATE MAX STRINGER RUN OF 10'-6"
- 27. 2x6 DF#2 (MIN) LANDING FLOOR JOISTS AT 16"0.C. WITH LUS26 HANGERS, WHERE APPLICABLE
- 28. 3 $\frac{1}{2}$ " x 18" 2.0E PSL FLOOR BEAM WITH MIT418 BEAM HANGERS
- 29. CENTER OUT-OF-PLANE WALL ANCHOR BETWEEN CORNERS OF MALL
- 30. HSS14 $\times 2x^{3}_{16}$ " STEEL BEAM
- 31. HSS10x2x $\frac{3}{16}$ " STEEL BEAM
- 32. HSS2X2X³/16" STEEL COLUMN

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FOR A LARGE	ER SCALE VIE	EN OF TH	E FLOOR FR	RAMING, SEE S

CEILING FRAMING (2)								
JOIST (DF-L#2)	MAXIMUM ALLOWABLE SPAN	LATERAL BRACING (1)						
2x4 AT 24" o.c.	8'-0"	NONE REQ'D						
2x6 AT 24" o.c.	13' <i>-0</i> "	MID-SPAN						
2x8 AT 24" o.c.	17'-0"	MID-SPAN						
2x10 AT 24" o.c.	20'-8"	1/3 POINTS						
2x12 AT 24" <i>o.</i> c.	22'-0"	1/3 POINTS						
2x12 AT 16" <i>o.</i> c.	26'-4"	1/4 POINTS						

(1) PROVIDE LATERAL BRACING BY INSTALLING CONTINUOUS FULL DEPTH BLOCKING OR CONTINUOUS 2X4 FLAT STRONGBACK OVER TOP OF JOISTS WITH (2) 10d PER CONTACT, LAP STRONGBACK OVER MINIMUM (4) JOISTS (2) SPANS SHOWN ARE FOR STANDARD CEILING LOADS -ANY SPECIAL LOAD CONDITIONS, SUCH AS STORAGE REQUIREMENTS, SHALL BE BROUGHT TO THE ATTENTION OF THE ENGINEER OF RECORD IMMEDIATELY.

NAILS FOR ALL STRUCTURAL FRAMING SHALL BE: NAIL TYPE DIAMETER LENGTH 8d COMMON 0.131" 2.5" 10d COMMON 0.148" 3" 16d SCREW SHANK* 0.148" 3.5" 16d COMMON 0.162" 3.5"

* MAY BE SUBSTITUTED FOR 16d COMMON ON PLANS

FRAMING	NOT	ES

- * FOR TYPICAL FLOOR PLYWOOD, SEE DETAIL 11/S2.20 * FOR TYPICAL SHEAR WALL, SEE DETAIL 12/52.20 * FOR TYPICAL MULTI-MEMBER NAILED LAMINATIONS, SEE
- DETAIL 21/52.20 & 22/52.20 * FOR TYPICAL TOP PLATE SPLICE, SEE DETAIL 14/S2.20
- * FOR NON-BEARING WALL TO JOIST ATTACHMENT SEE DETAIL 13/52.20
- * TYPICAL FLOOR HEADER TO BE 6x10 DF#2 UNO UNLESS OTHERWISE NOTED, ALL FLOOR BEAMS SHALL BE ATTACHED WITH A SIMPSON HGA10 ON ONE FACE TO BEARING WALL DOUBLE TOP PLATES. * FB-7, 8, \$ 9 HAVE BEEN REMOVED FROM THIS PLAN

POST KEY:

- (A) DOUBLE 2X STUD/TRIMMER MATCH DEPTH OF STUDWALL OR WIDTH OF BEAM - WHICHEVER IS GREATER
- (B) 4x POST MATCH DEPTH OF STUDWALL OR WIDTH OF BEAM - WHICHEVER IS GREATER
- (\mathbf{c}) 6X POST - MATCH DEPTH OF STUDWALL OR WIDTH OF BEAM - WHICHEVER IS GREATER
- \bigcirc 4X KING STUD W/ CONNECTION PER SHEAR SCHEDULE -STUD TO MATCH DEPTH OF WALL
- 6X KING STUD W/ CONNECTION PER SHEAR SCHEDULE - STUD TO MATCH DEPTH OF MALL

NOTE: AT ALL UPPER FLOOR POST LOCATIONS, INSTALL SOLID FILLER BLOCK WITHIN FLOOR DEPTH IN-LINE WITH POST ABOVE AND BELOW

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FLOOR DIAPHRAGM SHEATHING: USE 11/8" APA-RATED CDX T&G PLYWOOD OR APA-RATED OSB SHEATHING (SPAN RATING = 60/32) WITH 10d COMMON NAILS (0.148" X 3") AT 6" O.C. EDGE, 10" O.C. FIELD, BLOCK ALL EDGES

14/51.20 AND 24/51.20

8" SOLID GROUTED CMU WAINSCOTING

WALL WITH REINFORCING PER DETAILS

16" O.C.



	SHEAR WALL SCHEDULE											
DENOTES SHEARWALL	MARK	SHEATHING ^{8,9}	NAILING ^{1,2,7}		RIM BOARD/BLOCKING TRANSFER TO	SOL	E PLATE CONNE BOARD/BLOC	CTION TO RIM KING ^{10,12}	⁵ ⁄8" DIA. AN W/ 3"S PLATE WA	CHOR BOLTS QXO.229" SHERS ⁶ , UNO		
			EDGE	FIELD	DOUBLE FOF FLATE	SOLE PLATE ¹¹	CONNECTOR	RIM BOARD OR BLK'G (MIN)	SILL PLATE (MIN)	ANCHOR BOLT SPACING		
SHEARWALL PER SHEAR SCHEDULE	1	³ %" CDX PLYWOOD (24/0), APPLIED TO ONE SIDE, BLOCK ALL EDGES	8 ^d AT 6"0.c.	8 ^d AT 12"0.c.	RBC (ROOF BOUNDARY CLIP) AT 24"0.C.; A35 AT 24"0.C.; OR LTP4 AT 24"0.C.	2x	16 ^d AT 6"0.c. ^{1,2}	2x DF OR 1 ³ 4" LSL	2X PT DF	60"0.c.		
SHEARWALL LENGTH	2	³ %" CDX PLYWOOD (24/0), APPLIED TO ONE SIDE, BLOCK ALL EDGES	8 ^d AT 4"0.c.	8 ^d AT 12"0.c.	RBC (ROOF BOUNDARY CLIP) AT 24"0.C.; A35 AT 24"0.C.; OR LTP4 AT 24"0.C.	2x	16 ^d AT 4"0.c. ^{1,2} STAGGERED	2x DF OR 1 ¾" LSL	2X PT DF	45" <i>o</i> .c.		
BEAM, GIRDER OR HEADER	з	³ %" CDX PLYWOOD (24/0), APPLIED TO ONE SIDE, BLOCK ALL EDGES	8 ^d AT 3"0.c.	8 ^d AT 12"0.c.	RBC (ROOF BOUNDARY CLIP) AT 24"0.C.; A35 AT 24"0.C.; OR LTP4 AT 24"0.C.	2x	SD525412 SCREWS AT 12"0.c.	3x DF OR 3 ½" LSL	2X PT DF 3X PT DF	15"o.c. 30"o.c.		
	4	³ / ₈ " CDX PLYWOOD (24/0), APPLIED TO ONE SIDE, BLOCK ALL EDGES	8 ^d AT 2"0.c.	8 ^d AT 12"0.c.	RBC (ROOF BOUNDARY CLIP) AT 24"0.C.; A35 AT 24"0.C.; OR LTP4 AT 24"0.C.	2x	SDS25412 SCRENS AT 9"0.c.	3x DF OR 3 ½" LSL	2X PT DF 3X PT DF	12"o.c. 24"o.c.		
DETAIL TAG	5	³ %" CDX PLYWOOD (24/0), APPLIED TO BOTH SIDES, BLOCK ALL EDGES ^{4,5}	8 ^d AT 4"0.c.	8 ^d AT 12"0.c.	RBC (ROOF BOUNDARY CLIP) AT 24"0.C.; A35 AT 24"0.C.; OR LTP4 AT 24"0.C.	Эх	SDS25600 SCREWS AT 8"0.c.	3x DF OR 3 ½" LSL	3x PT DF	20"0.c.		
2X4 STND OR BETTER STUD WALL WITH	6	³ /8" CDX PLYWOOD (24/0), APPLIED TO BOTH SIDES, BLOCK ALL EDGES ^{4,5}	8 ^d AT 3"0.c.	8 ^d AT 12"0.c.	RBC (ROOF BOUNDARY CLIP) AT 24"0.C.; A35 AT 24"0.C.; OR LTP4 AT 24"0.C.	Зx	SDS25600 SCREWS AT 6"0.c.	3x DF OR 3 ½" LSL	3X PT DF	16"O.C.		
2x6 DF#2 STUD WALL WITH STUDS AT	NOTES TO S	SHEAR WALL SCHEDULE S TO BE COMMON:			10) MAXIMUM FLOOF	R SHEATH	ING THICKNESS I	5 1"				

8^d (0.131" x 2 ½"), 10^d (0.148" x 3"), 16^d (0.162" x 3 ½") 2) GALVANIZED NAILS SHALL BE HOT DIPPED OR TUMBLED

3) RIM BOARD/BLOCKING TRANSFERS NOTED SHALL BE FULL LENTH OF WALL LINE, NOT JUST OVER THE SHEAR WALL 4) OFFSET VERTICAL JOINTS BY ONE STUD SPACE (MIN) ON OPPOSITE FACE OF WALL, PANEL END STUDS TO BE 3X (MIN)

5) FOUNDATION SILL PLATES AND ALL FRAMING MEMBERS AT ADJOINING PANEL EDGES SHALL BE 3" NOMINAL OR WIDER AND NAILS SHALL BE STAGGERED IN ALL CASES

6) THE HOLE IN THE PLATE WASHER IS PERMITTED TO BE DIAGONALLY SLOTTED WITH A WIDTH OF 13/16" AND A LENGTH OF 1 %," PROVIDED A STANDARD CUT WASHER IS PLACED BETWEEN THE PLATE WASHER AND THE NUT

7) ALL NAILING SHALL BE FINISHED OFF BY HAND HAMMERING TO ENSURE NAILS ARE DRIVEN FLUSH TO FACE OF PLMOOD. OVERDRIVEN NAILING MAY REQUIRE ENTIRE PANEL TO BE REMOVED AND REPLACED UPON OBSERVATION

8) 3/1" APA-RATED OSB SHEATHING (SPAN RATING = 24/0) MAY SUBSTITUTE CDX PLYWOOD 9) PANELS MAY BE INSTALLED EITHER HORIZONTALLY OR VERTICALLY, PROVIDED THE WALL FRAMING IS SPACED NO GREATER THAN 16"0.C.

11) PANEL EDGES SHALL NOT ADJOIN AT SOLE PLATE 12) NAILING ON NARROW FACE SHALL EXCEED SPACING SHOWN BELOW

	CLOSEST ON CENTER SPACING PER ROW							
NAIL SIZE	1 3/4"	3 1/2" MICROLLAM I VI		PARALLAM PG				
	TIMBERSTRAND LSL	TIMBERSTRAND LSL						
8 ^d (0.131" x 2 ½")	3"	3"	3"	3"				
10 ^d (0.148" x 3")	4"	3"	4"	4"				
16 ^d (0.162" x 3 ½")	6"	3 ½"	8"	6"				
* IF MORE THAN ONE ROW OF NAILS IS USED, THE ROMS MUST BE OFFSET AT LEAST $\frac{1}{2}$ " AND STAGGERED								







STRUCTURAL KEY NOTES:

- 1. 11 $\frac{1}{6}$ " TJI 210 (MIN) AT 24"0.C. WITH HU2.1/11 HANGERS (WEB STIFFENERS REQUIRED) OR ITS2.06/11.88 HANGERS.
- 2. (E) FLOOR JOISTS.
- 3. $5\frac{1}{4}$ " x 11 $\frac{1}{6}$ " 2.0E PSL (MIN) W/ HGLTV5.511xOSR(L) (MIN) HANGERS, WHERE APPLICABLE. IF STEEL BEAM OPTION IS USED FOR BEAM ON LINE 3, USE SAME HGLTV HANGER WITH H $_1$ = 9 $\frac{3}{2}$ ".
- 4. 7" x 11 $\frac{\gamma}{6}$ " 2.0E PSL (MIN) W/ GLTV411.88-2 HANGERS WHERE APPLICABLE.
- 5. 7" x 18" 2.0E PSL (MIN) OR W12x35 A36 STEEL BEAM.
- 6. HSS $6 \times 6 \times 3^{3}_{16}$ COLUMN W/ ECCOQ7¹/₈-6 POST CAP.
- 7. ST6236 STRAP AROUND OUTSIDE EDGE OF CORNER CONNECTION. INSTALL EQUAL LENGTHS OF THE STRAP ON EACH BEAM. STRAP NOT REQUIRED IF STEEL BEAM OPTION FOR LINE 3 IS USED.
- 8. MSTI26 INSTALLED TO FACE OF (N) FLOOR BEAM AND FACE OF (E) RIM BOARD WITH EQUAL LENGTHS APPLIED TO BEAM AND RIM. IF RIM BLOCKING WAS USED, CONTACT EOR FOR STRAPPING OPTION.
- 9. (N) 6x6 DF#2 POST (MIN) WITH ECCQ7.1-6 POST CAP. CAP STRAPS MAY "STRADDLE" OVER (E) DOUBLE TOP PLATE
- 10. BREAK (E) RIM BOARD TO ALLOW (N) FLOOR BEAM FULL BEARING ON (E) MALL
- 11. (E) COLUMN
- 12. 18" RED I-65 FLOOR JOISTS AT 16"0.C. WITH MIU2.56/18 HANGERS WHERE APPLICABLE
- 13. 5 $\frac{1}{4}$ " x 11 $\frac{1}{6}$ " 2.0E PSL HEADER
- 14. 5 $\frac{1}{4}$ " x 16" 2.0E PSL HEADER
- 15. 6x10 DF#2 (MIN)
- 16. (E) 5 $\frac{1}{4}$ " X 9 $\frac{1}{4}$ " 2.0E PSL HEADER

- 17. (E) MBHA5.50/9.25 HANGER
- 18. 6x8 DF#2 HEADER (MIN)
- 19. 5 $\frac{1}{4}$ " x 11 $\frac{1}{4}$ " 2.0E PSL (MIN) FLUSH WITH TOP OF FLOOR JOISTS
- 20. 2x8 DF#2 FLOOR JOISTS AT 16"0.C. WITH LUS28 HANGERS OVER HVAC AREA
- 21. 1 $^3\!\!/_4$ " x 18" 1.9E LVL HEADOUT BEAM WITH MIU1.81/18 HANGER AT EACH END
- 22. DBL 1 $\frac{3}{4}$ " x 18" 1.9E LVL BEAM WITH HU416 HANGER, WHERE
- REQUIRED
- 23. DBL 1 $\frac{3}{4}$ " x 18" 1.55E LSL TIMBERSTRAND STAIR/LANDING SUPPORT BEAM
- 24. 4x8 DF#2 LANDING SUPPORT BEAM (MIN)
- 25. 4x4 DF#2 POST WITH CCQ44SDS2.5 TO UNDERSIDE OF FB-8 AND INVERTED ECCQ445D52.5 TO TOP OF FB-7, SEE DETAIL 13/52.21
- 26. (3) 1 $\frac{3}{4}$ " x 14" 1.55E LSL TIMBERSTRAND STAIR STRINGERS ACROSS 48" MAX STAIR WIDTH WITH INTERMEDIATE SUPPORT WALL INSTALLED AS NECESSARY TO ACCOMMODATE MAX STRINGER RUN OF 10'-6"
- 27. 2x6 DF#2 (MIN) LANDING FLOOR JOISTS AT 16"0.C. WITH LUS26
- HANGERS, WHERE APPLICABLE 28. 3 $\frac{1}{2}$ " x 18" 2.0E PSL FLOOR BEAM WITH MIT418 BEAM HANGERS
- 29. CENTER OUT-OF-PLANE WALL ANCHOR BETWEEN CORNERS OF MALL
- 30. HSS14x2 x_{16}^3 " STEEL BEAM
- 31. HSS10x2 x^{3}_{16} " STEEL BEAM
- 32. HSS2X2X³/16" STEEL COLUMN



USE 1/2" APA-RATED CDX T&G PLYWOOD OR APA-RATED OSB SHEATHING (SPAN RATING = 60/32) WITH 10d COMMON NAILS (0.148" X 3") AT 6" O.C. EDGE, 10" O.C. FIELD, BLOCK ALL EDGES

NAILS FOR ALL STRUCTURAL FRAMING SHALL BE: NAIL TYPE DIAMETER LENGTH 8d COMMON 0.131" 2.5" 10d COMMON 0.148" 3" 16d SCREW SHANK* 0.148" 3.5" 16d COMMON 0.162" 3.5"

* MAY BE SUBSTITUTED FOR 16d COMMON ON PLANS

- (\mathbf{c}) 6X POST - MATCH DEPTH OF STUDWALL OR WIDTH OF BEAM - WHICHEVER IS GREATER
- (D)4X KING STUD W/ CONNECTION PER SHEAR SCHEDULE -STUD TO MATCH DEPTH OF WALL
- 6X KING STUD W/ CONNECTION PER SHEAR SCHEDULE - STUD TO MATCH DEPTH OF MALL

NOTE: AT ALL UPPER FLOOR POST LOCATIONS, INSTALL SOLID FILLER BLOCK WITHIN FLOOR DEPTH IN-LINE WITH POST ABOVE AND BELOW

RIM BOARD OR SILL PLATE ANCHOR BOLT

7) ALL NAILING SHALL BE FINISHED OFF BY HAND HAMMERING TO ENSURE NAILS ARE DRIVEN FLUSH TO FACE OF PLMOOD. OVERDRIVEN NAILING MAY REQUIRE ENTIRE PANEL TO BE REMOVED AND REPLACED UPON OBSERVATION

8) $\frac{3}{8}$ " APA-RATED OSB SHEATHING (SPAN RATING = 24/0) MAY SUBSTITUTE CDX PLYWOOD 9) PANELS MAY BE INSTALLED EITHER HORIZONTALLY OR VERTICALLY, PROVIDED THE WALL FRAMING IS SPACED NO GREATER THAN 16"0.C.

	CLOSEST ON CENTER SPACING PER ROW			
NAIL SIZE	1 ¾"	з 1⁄2"		PARALIAMPO
	TIMBERSTRAND LSL	TIMBERSTRAND LSL		FARALLAM FSL
8 ^d (0.131" x 2 ½")	3"	3"	3"	3"
10 ^d (0.148" x 3")	4"	3"	4"	4"
16 ^d (0.162" x 3 ½")	6"	3 ½"	8"	6"
IF MORE THAN ONE ROW OF NAILS IS USED. THE ROWS MUST BE OFFSET AT LEAST 1/3" AND STAGGERED				













