

GENERAL STRUCTURAL NOTES,

- Coordination: The Contractor shall verify all dimensions and conditions at the job site and shall be responsible for coordination of all work and materials including those furnished by subcontractors.
- Discrepancies: The Contractor shall inform the Engineer in writing, of any discrepancies or omissions noted on the drawings that do not conform to codes, rules and regulations. Upon receipt of such information, the Engineer will send instructions to all concerned. Any such discrepancy, omission, or variation not reported shall be the responsibility of the contractor.
- Typical Details and Notes on the SN and ST sheets shall apply unless specifically shown or noted otherwise. Construction details not fully shown or noted shall be similar to details shown for similar conditions. All construction work shall comply with all applicable building codes, regulations and safety requirements.
- Trade Names: Where an item is identified by a trade name the suffix "or approved equivalent" shall be implied unless specifically noted otherwise.
- Standards: Except where more stringent requirements are noted or shown in the plans or specifications, all phases of work shall conform to the minimum standards of the 2019 CBC adopted by the City of Newport Beach.
- Building Live Loads:

Roof -	20 psf**
Floor -	40 psf*
Deck -	60 psf*
Solar -	5 psf (where occurs)

\*Reducible depending upon tributary area  
\*\*Reducible depending upon tributary area, and slope
- Inspection: Wherever special and/or continuous inspection is called for in these notes of the building codes, such inspection shall be performed by a Testing Laboratory employed by the owner. Job site visits by the Engineer shall not constitute an official inspection.
- Other Trades: See architectural and consultant drawings for size and location of pipe, other openings, anchor bolt requirements for equipment and other details not shown on these structural drawings. All dimensions are to be checked and verified with the architectural drawings.
- Materials and Workmanship: The Contractor shall supply all labor, materials, equipment and services of every kind, including water and power, necessary for the proper execution of the work shown or indicated in these drawings. All material shall be new materials. Subcontractors shall be skilled in their trade.
- Materials and Workmanship Warranty: The Contractor shall replace any defective materials and correct poor workmanship with no additional costs to the owner, and shall remedy any defects in material or workmanship which appear in one year from the date of completion of the project. This warranty applies to the work done by the subcontractors as well as the work done by the employees of the contractor.
- Safety: The Contractor shall adequately protect his work, adjacent property and the public, and be responsible for damage or injury due to his act or neglect.
- Sidewalk Protection: Pedestrian traffic shall be protected as specified in Section 3306 of the CBC adopted by the City of Newport Beach.
- Shoring: It shall be the Contractor's sole responsibility to design and provide adequate shoring, bracing and formwork, etc., as required for the protection of life and property during the construction of this building.
- Excavation: The Contractor shall be solely responsible for all excavation procedures including lagging, shoring, and protection of adjacent property, structures, streets and utilities in accordance with the standards of the City of Newport Beach and with the joining property. The premises shall be kept from accumulation of waste materials, and debris, and at the end of the job the contractor shall remove all rubbish, surplus of materials, and tools and leave the building broom clean.
- Shop Drawings: Shop drawings are an aid for field placement and are superseded by the structural drawings. It shall be the responsibility of the general contractor to make certain construction is in full agreement with the latest construction documents.
- Shop Drawing Check: The review of shop drawings by the Structural Engineer is only for general compliance with the structural drawings and specifications. This review does not guarantee in any way that the shop drawings are correct nor does it infer that they supersede the structural drawings.
- Substitutions: Before substitutions for any materials or systems shown on the drawings or called out in the specifications will be considered, the person proposing the substitution shall submit a written letter to the structural engineer stating the following:  
A. The proposer agrees to pay the engineer for the cost of evaluating the proposed change.  
B. The proposer agrees to pay the engineer for the cost of changing the drawings and details should this be require by the building department or should the engineer decide it is necessary.  
C. The net saving shall be passed on to the owner should the substitution be approved.
- The contractor shall notify the Architect and Structural Engineer where a conflict or discrepancy occurs between the Structural drawings and any other portion of the Contract Documents or existing field conditions. Such notification shall be given in due time so as not to affect the construction schedule. In case of a conflict between Structural drawings and specifications the more restrictive condition shall take precedence unless written approval has been given for the least restrictive. Contractor shall verify all dimensions with Architectural prior to commencing any work.

FOUNDATION NOTES,

- Design: Foundation designed in conformance with the recommendations by G3SOIL WORKS  
Report No(s). 1-1183  
Dated JUNE 28, 2021  
Signed by, ERIK HAAKER, C.E.G 2708  
DANIEL MORIKAWA, G.E. 2726  
Phone# 714-668-5600  
Address 350 Fischer Ave. Front., Costa Mesa, CA 92626
- Footings: All footings shall extend a minimum depth below finished or natural grade into acceptable geological material as follows unless noted otherwise.
  - Exterior footings - 18"
  - Interior footings 18"
  - Foundation wall footings - 18"
- Foundation design soil values
  - Allowable Bearing Pressure
    - Soilcrete Material 3000 psf.
    - Allowable Passive Pressure
      - Soilcrete Material = 300 pcf
      - Coefficient of friction
      - Soilcrete Material 0.3 (Ultimate)
    - Allowable bearing pressure may be increased j for wind or seismic  
Allowable passive and friction may be combined 100% to resist sliding

FOUNDATION NOTES CONTD.,

- Backfill: Back fill shall not be placed behind cantilevered retaining walls until at least 7 days after completion of wall construction. Backfill shall not be placed until after completion and inspection of waterproofing where waterproofing occurs. Backfill behind restrained walls shall not be placed until after the walls are supported by the restraining elements unless shown or noted otherwise. Do not proceed with backfill until (7) days as a minimum after the completion of interior floor systems unless restrained walls are adequately braced.
- Backfill: Partial backfilling of retaining walls may commence only with written direction from the Engineer of Record (EOR).
- Waterproofing: All retaining walls of the building shall be waterproofed in accordance with approved Architectural Drawings and Specifications.
- Inspections: A Geotechnical Engineer shall certify in writing the adequacy of soil beneath foundations prior to placement of forms or reinforcing. A Geotechnical Engineer or his authorized representative shall inspect all subgrade preparation prior to the placement of any reinforcing steel or concrete and shall perform test as necessary to verify that such work is in conformance with the recommendations given in the soils report or building code.

CONCRETE NOTES,

- Compressive Strength: The minimum ultimate compressive strength of all concrete shall be 4500 psi min at 28 days, unless noted otherwise. Refer to plans and table below for the design strength of concrete for specific structural elements. Design of mixes shall be by on approved testing laboratory and signed by a registered engineer.
- Weight: All concrete shall be "normal weight" unless noted otherwise.
- Concrete shall have a maximum water-cementitious material ratio, by weight, of 0.45
- Cement: Cement shall conform to the ASTM C150-09 Type V.
- Aggregate: Aggregate shall conform to ASTM C33-08.
- Special Inspections: See the special inspection table and the special inspection note sheet for any inspections required to be made.
- Concrete Placement and Quality: Shall conform to applicable recommendations of ACI SP-15. A copy of SP-15 shall be available at construction site during the project.
- Debris: Remove all debris from forms before placing of concrete.
- Doweling: All walls and columns shall be doweled into footings, walls, beams, or slabs as shown or noted on the drawings.
- Splices: Vertical wall bars shall be spliced at or near floor lines. Splice bars in spandrels, walls, beams, grade beams, etc., unless noted otherwise as follows; top bars at mid-point of span, bottom bars at the support. All reinforcing steel shall be securely wired and properly supported above the ground and away from forms as shown or noted.
- Inserts: All items to be cast in concrete such as reinforcing, dowels, bolts, anchors, pipes, sleeves, etc., shall be secure and positioned before placing of concrete.
- Conduit and Pipes: Conduit and Pipes shall not be embedded in structural concrete except where specifically approved by the Engineer of Record. Maximum conduit and pipe size shall be 1/3 of the slab or wall thickness and located at its mid depth. Minimum spacing shall be 3 times the conduit/pipe diameter. Conduit and pipes shall not impair the strength of the member. Conduit and pipes shall not be aluminum. Conduit and pipes shall not displace more than 4% of the cross section area.
- Construction Joints: Shall have entire surface removed to expose clean aggregate solidly embedded. The contractor shall obtain the approval of construction joint location in all slabs, beams, and walls.
- Non-Shrink cement grout shall have a minimum 28 day compressive strength of 7000 psi. Use "Sika grout 212" or Masterflow 928

REINFORCING STEEL NOTES,

- Grode: All reinforcing steel shall be deformed bars which shall conform to the standard specifications of ASTM A-615 Grade 60
- Welded Wire Mesh: Electric welded wire mesh shall conform to ASTM A-185. Size shall be as shown on the drawings. Minimum laps to be 12".
- Minimum Lap: See lap/splice details.
- Minimum Cover: Reinforcing steel to have the following minimum cover:

A. Concrete against earth (not formed).....	3"
B. Concrete exposed to earth or weather (formed or troweled)	#6 - #18 bar.....2"
#5 and smaller.....	1-1/2"
C. Slob-On-Grade .....	@ CL of slob
D. Walls.....	1-1/2"
E. Concrete Slob (formed).....	1"
F. Structural Slab and walls.....	1"
- Welding: Low hydrogen welding rods shall be used for all welding to reinforcing bars, but only where shown or noted by the Structural Engineer.
- Welding: Grade 60 rebar shall be preheated, when welding, as prescribed by AWS D1.4 for various size bars. Rebar shall be ASTM A 706 Grade 60.
- Doweling: Dowels shall be provided at construction joints and shall be the same size and spacing as detailed or #3 @ 12"o.c. x 3'-0" long (minimum).
- Tolerance for Rebar Placement: Tolerance for longitudinal location of bends and ends of reinforcement shall be plus or minus 2 inches except at discontinuous ends of members where tolerances shall be plus or minus 1/2 inch.

MASONRY NOTES,

- Strength: Block shall perform to standard specification for hollow concrete masonry units ASTM C90 minimum compressive strength 2,000psi. fm=1500 psi. All mortar shall be type S. All grout shall be 2500 psi min. at 28 day strength. Grout shall be placed at maximum 4 ft. lifts unless noted otherwise.
- Masonry Unit Type: Masonry block joints shall have at least one adjacent open cell face. Blocks shall have at least one open end.
- Reinforcement: All masonry rebar should be a minimum grade 60.
- Mortar: Cement mortar shall be freshly prepared and uniformly mixed and composed by volume of one part Portland Cement, three parts sand, and a 1/4 part lime putty unless otherwise noted or specified.
- Grout: Grout shall be freshly prepared, uniformly mixed, and composed of the following ration by volume: One part Portland Cement, two parts pea gravel, three parts sand. Sufficient water should be added to produce a consistency for pouring without segregation of grout constituents. Where approved by the engineer, grout mix shall be designed by the owner's testing laboratory.
- Grouting: All cells are to be solid grouted. Vertical reinforcing shall be held in position at top and bottom and not exceeding 192 bar diameters during grouting.
- Consolidation: Consolidation shall be by means of a vibrator. No puddling or tamping is allowed.
- Inspection: See "Inspection Notes" on the drawing as well as the Special Inspection Sheet.
- Reinforcing: All jambs, heads, and sills have two #5 bars minimum.

STRUCTURAL STEEL NOTES,

- Materials: All structural steel shapes shall conform to the following UNO:

Shape	ASTM Designation	Yield Stress
a. W (Wide Flange)	ASTM A992	(Fy-50ksi)
b. WT (Tee)	ASTM A992	(Fy-50ksi)
c. C (Channel)	ASTM A36 or A992	(Fy-36, 50ksi)
d. MC (Miscellaneous Channel)	ASTM A36	(Fy-36ksi)
e. L (Angle)	ASTM A36	(Fy-36ksi)
f. M, S, MT and ST	ASTM A36	(Fy-36ksi)
g. HP (Bearing Piles)	ASTM A572 Grade 50	(Fy-50ksi)
h. HSS Rectangle	ASTM A500 Grade C	(Fy-50ksi)
i. HSS Round	ASTM A500 Grade C	(Fy-46ksi)
j. Steel Pipe	ASTM A53 Grade B	(Fy-35ksi)
k. Plates and Bars	ASTM A572 Grade 50	(Fy-50ksi)
l. Miscellaneous Steel	ASTM A572 Grade 50	(Fy-50ksi)
- Welding: All welds shall be in conformity with the stand code for arc and gas welding of American Welding Society (AWS) and the American Institute of Steel Construction (AISC). All structural welding shall be performed by certified welders using the shielded electric arc process with approved electrodes. All welds for lateral force resistance components shall be of a notch tough weld metal (CVN 20ft# @O-deg.F. and 40ft# @70deg.F.) and E70XX (70ksi) electrodes such as E7018 for shielded metal arc welding or equivalent according to (AWS) requirements. All other welds shall be of min E70XX (70ksi) electrodes.
- Shop Welding: Shop welding shall be performed only in the shop of an approved licensed fabricator.
- Field Welding: All field welding shall be performed by certified welders and shall be continuously inspected by a Registered Special Inspector.
- Bolts: All bolts shall be unfinished bolts conforming the following UNO:
  - High Strength Conventional ASTM F3125 Gr. A325 or Gr. A490
  - High Strength Tension-Control ASTM F3125 Gr. F1852 or Gr. F2280
- Nuts and Washer shall conform to the following UNO,

a. Nuts	ASTM A563
b. Hardened washers	ASTM F436
c. Direct-Tension Indicator washer	ASTM F959
- Anchor rods shall be ASTM F1 554 Grade 55 S1, Threaded and Nitted unless noted otherwise. Anchor rod washer may be ASTM F844. Standard cut washer shall be between double nut at embedded end of anchor rod.
- Bolt Holes: Bolt holes in steel to be 1/16" larger diameter than the nominal bolt size used except as noted otherwise.
- Steel headed stud anchors shall be ASTM A108 unless noted otherwise.
- Steel Frames: All structural steel for frames shall conform to ASTM A992 Gr. 50 per AISC. All welds for steel frames shall be of a notch tough weld metal (CVN 20ft# @Odeg.F. and 40ft# @70deg.F.) and E70XX (70ksi) electrodes such as E7018 for shielded metal arc welding or equivalent according to (AWS) requirements, unless otherwise noted in these drawings. Complete-joint-penetration welds shall have the backup bars removed, the exposed weld back gouged, ground to sound bright metal, and finally reinforced with a minimum 11/16" fillet weld to comply with current standards.
- Shop Drawings: Shop drawings shall be submitted to the Architect for review and comment prior to fabrication.
- Detailing: All connections and detailing practice shall conform to the 14th Edition of A.I.S.C. specifications.
- Certification: At completion of fabrication, the approved fabricator shall submit a certificate of compliance to the building official stating that the work was performed in accordance with the approved construction documents.

STRUCTURAL STEEL AND MISCELLANEOUS METAL (ALL OTHER STEEL) WELDING,

- All welding and welded joints shall be in strict conformance with the latest edition of AWS D1.1 and the California Building Code with all applicable amendments. All non pre-qualified welded joints shall be qualified by test and procedure qualification test record included per the latest edition of AWS D1.1.
- Welding of sheet metal and metal studs shall be in accordance with AWS D1.3
- A written "Welding Procedure Specification" (WPS) shall be developed by the fabricator/fabricator, and reviewed by the owner's representative and building department. The WPS shall contain all the necessary information required by the Code, the Specifications, and any other information necessary to produce welds that are in compliance with these requirements. The WPS shall include the welding parameters recommended by the electrode manufacture. All welders and inspectors shall adhere to the WPS and shall retain a copy.
- All welds shall have a filer metal with Charpy V-notch toughness of 20 ft-lbs average at minus twenty degrees Fahrenheit and 40 ft-lbs at seventy degrees Fahrenheit. Certify conformance to Charpy V-notch toughness requirements with test by an independent testing laboratory.
- Weld lengths called for on the plans are the net effective length required. Weld size shall be AISC minimums unless a larger size is noted. Where length of weld is not shown, it shall be full length of joint. All butt and groove welds shall be full penetration, unless noted otherwise.
- All welding electrodes and electrode flux combinations (filler metal) shall be minimum 70 ksi, UNO, and shall meet the requirements per AISC seismic provisions.
- GMAW and FCAW-G welding processes shall not be permitted when wind speed exceeds 3 MPH.
- Where field welding is noted, the designation is given as a suggested construction procedure only. The contractor is solely responsible for identify the method of fabrication.
- All shop welds shall be performed by a fabricator licensed by the local jurisdiction.
- All welders shall be qualified for the work they will be performing shall have current valid certifications issued by AWS and the governing jurisdiction.

PREFABRICATED STRUCTURAL WOOD "I" JOIST NOTES,

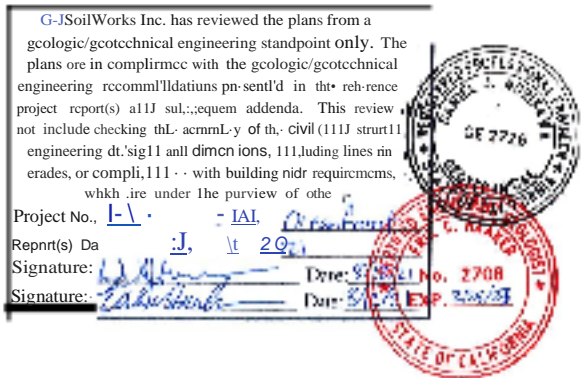
- Design: All Prefabricated Structural Wood (PSW) members have been designed in accordance with the applicable provisions of the 2019 California Building Code and appropriate current ICC approvals, ICC ESR-1336 dated September 2019. The manufacturer shall submit shop drawings and proof of compliance to the owner for review and acceptance.
- Protection & Care: All glue used in PSW is waterproof, however, long exposure to water and sun will cause deterioration and probable checking of the wood. PSW should receive the same protection from weather given to other wood products. The glue bond between the flanges and the plywood web of a prefabricated wood joist is critical to the performance of the joist. Do not force or load the flange improperly.
- Handling: A forklift or similar equipment carelessly used could damage the wood flange or webs of PSW. Take Care.
- Construction Loads: A PSW system is designed to support specific loads. It is dangerous to overload a single joist or group of joist with piles of construction materials. Distribute such materials in small bundles, consult action with the Engineer or manufacturer if necessary.
- Erection: PSW strength is in the upright position. The must be supported laterally to develop full strength in a complete building. This is normally provided by the sheathing. If members are to be loaded before the sheathing is installed, temporary horizontal bracing must be applied to prevent their damage or failure.
- Testing and Inspection: Shall conform to Sec. 2518, Title 24.R.

HARDWARE NOTES,

- Unless specifically notes otherwise, all wood framing connectors shall be by Simpson Strong-Tie. All installations shall follow current recommendation of Simpson and ICC reports
- Where Simpson Strong-Tie allows the use of alternate or additional fasteners, the fastener type and amount resulting in the higher capacity shall be used, unless noted otherwise.
- The National Design Specifications (NDS) for wood construction shall be followed with respect to fabrication and assembly of all fasteners, edge and end distance requirements, and minimum penetration requirements.

WOOD NOTES,

- Lumber: All lumber shall conform to the provision of the 2019 CBC section 2303.
- Lumber Grading: All wood structural members shall be D.F. No. 1 per WCLIB Rule #17 (both horizontal and vertical), unless noted otherwise. All structural members shall be grade marked per Rule #17 of WCLIB.
- Sills and Ledgers: All sills and ledgers in contact with concrete or within 8" of soil shall be pressure treated D.F. conforming to 2019 CBC section 2303.
- Wood supported by exterior foundation walls. Wood framing members, including wood sheathing, that are in contact with exterior foundation walls and are less than 8 inches from exposed earth shall be of naturally durable or preservative-treated wood.
- Sleepers and sills. Sleepers and sill on a concrete or masonry slab that is in direct contact with earth shall be of naturally durable or preservative treated wood.
- Sill Anchorage: Unless shown or noted otherwise, all sill plates shall be anchored with 1/2" X 12" anchor bolts embedded a minimum of 8" into concrete. They shall be spaced at a maximum of 4'-0" o.c. There shall be a minimum of 2 bolts per piece of sill plate with one bolt located not more than 12" or less than 4 1/2" from each end of each piece. A 0.229X3"X3" min. plate washer shall be used on each bolt. The hole in the plate washer is permitted to be diagonally slotted with a width of up to 1 1/4" larger than the bolt diameter and a slot length not to exceed 1", provided a standard cut washer is placed between the plate washer and the nut. The plate washer shall extend to within 1/2" of the edge of the bottom plate on the side(s) with sheathing or other shear resisting material for wind or seismic.
- Wood Supported by Exterior Foundation Walls: Wood framing members, including wood sheathing, that rest on exterior foundation walls and are less than 8 inches from exposed earth shall be of naturally durable preserve-treated wood.
- Exterior Lumber: All exterior exposed lumber to be preserved treated. Any cutting, notching, or boring of preserve treated lumber shall be performed, treated, and sealed according to manufacturer's recommendations. Surface damage shall be treated and sealed according to manufacturer's recommendations.
- Fasteners and connectors for preserve treated lumber and fasteners and connectors exposed to weather: Fasteners, including nuts and washers, in contact with preservative-treated lumber or exposed to weather shall be hot-dipped zinc-coated galvanized steel in accordance with ASTM A153 or stainless steel. Fasteners other than nails, timber rivets, wood screws and lag screws shall be permitted to be mechanically deposited zinc-coated steel with coating weights in accordance with ASTM B695, Class 55 minimum. Connectors that are used in exterior applications and in contact with preservative-treated wood shall have coating types and weights in accordance with the treated wood or connector manufacturer's recommendations. In the absence of manufacturer's recommendation, a minimum of ASTM A653, Type G185 zinc-coating galvanized steel, or equivalent, shall be used.
- Fasteners for fire-retardant-treated wood used in exterior applications or wet or damp locations: Fasteners, including nuts and washers, for fire-retardant-treated wood used in exterior applications or wet or damp locations shall be of hot-dipped zinc-coated galvanized steel in accordance with ASTM A153 or stainless steel. Fasteners other than nails, timber rivets, wood screws and lag screws shall be permitted to be mechanically deposited zinc-coated steel with coating weights in accordance with ASTM B695, Class 55 minimum.
- Fasteners for fire-retardant-treated wood used in interior applications: Fasteners, including nuts and washers, for fire-retardant-treated wood used in interior locations shall be in accordance with the manufacture's recommendations. In the absence of manufacturer's recommendations, fasteners, including nuts and washers, shall be of hot-dipped zinc-coated galvanized steel in accordance with ASTM A153 or stainless steel. Fasteners other than nails, timber rivets, wood screws and lag screws shall be permitted to be mechanically deposited zinc-coated steel with coating weights in accordance with ASTM B695, Class 55 minimum.
- Bolts: All bolts in wood shall be ASTM A307 Gr A unless noted otherwise. All bolt heads and nuts bearing on wood shall have standard cut washers meeting the requirements of ANSI/ASME B18.22.2. All bolt holes in wood shall be drilled 1/32" to 1/16" diameter larger than the nominal bolt diameter.
- Anchor Bolts: All anchor bolts shall be ASTM F1 554 Gr 36 unless noted otherwise. Anchor bolts in wood still plates may be hooked, headed, or threaded and nuted. See plans and details for anchor type for other applications.
- Lag Screws: All lag screws bearing on wood shall have washers. The hole far the shank shall be the same diameter and length as the unthreaded shank, the lead hole for the threads shall be about 70 percent of the shank diameter and length of the thread.
- Wood Screws: The lead hole shall be about 70 percent of the root diameter of the screw and the length of the screw.
- Nails: Nailing shall conform to Table 2304.9.1 of the 2019 CBC Connections shown are minimum permissible. All nails shall be common wire nails unless noted otherwise. Where possible, nails driven perpendicular to the grain shall be used instead of toenails. Pre-drill members and nail should splitting develop due to the nature of the material or connection.
- The National Design Specifications (NDS) for wood construction shall be followed with respect to fabrication and assembly of all fasteners, edge and end distance requirements, and minimum penetration requirements.
- Plywood Sheathing: Plywood sheathing shall be D.F. plywood with exterior type glue (Exposure 1) as specified by the American Plywood Association and as noted on plans. Wood structural panels shall conform to requirements of DOC PS 1 or DOS PS 2. Nail as shown on plans. If the nail head breaks the face ply, the nail shall be removed and renailed into firm adjacent wood. Nails heads which break face ply shall be cause for rejection of vertical or horizontal diaphragms as installed.
- OSB Sheathing: OSB sheathing shall be Exposure 1 D.F. as specified by the American Plywood Association and as noted on the plans. OSB structural panels shall conform to the requirements of DOC PS 2. Nail as shown on plans.
- Roof Sheathing: Roof sheathing shall be inspected and approved prior to placing of any roofing and/or insulation.
- Wall Sheathing: Wall sheathing shall be inspected and approved prior to covering with drywall or sheils.



GENERAL STRUCTURAL NOTES



GLUE LAMINATED BEAM NOTES:

1. Lumber Grade: Glue laminated beams shall be D.F., combination "24F-V8", resorcinol glue, industrial appearance with ends sealed unless otherwise noted. The contractor shall provide shop drawings for review to the Owner for review and comment prior to fabrication. Copies of the AITC certificate of inspection shall be provided to the Owner and Building Department before glue laminated members are installed.
2. Laminations: Laminations shall be 1-1 /2" unless otherwise noted.
3. Camber: Cambers shall be as shown. Where no camber is shown, none is desired.
4. Exterior Beams: Exterior exposed glue laminated beams are to be preserve treated and approved for exterior use. Pressure treated Glue laminated beams shall be D.F. or S.P., combination "24F-V8" or "24F-V5M1" with a minimum value of Fb=2400 psi (tension and compression zone) and 1.8 MOE. Any field alterations shall be performed, treated and sealed according to manufacturer's recommendations. Surface damage shall also be treated and sealed according to manufacturer's recommendations.
5. Preserve-Treated Beams: Fasteners for preservative-treated beams shall be hot dipped zinc-coated galvanized steel per ASTM A 153 or stainless steel. Fasteners other than nails, timber rivets, wood screws and lag screws shall be permitted to be of mechanically deposited zinc coated steel with coating weights in accordance with ASTM B 695, Class 55 minimum. All other steel to be hot dipped zinc-coated galvanized or stainless steel.

TIMBERSTRAND (LSL) NOTES:

1. Installation: Timberstrand (LSL), made of strands of wood oriented in a direction parallel to the length of the structural composite lumber, by Weyerhaeuser, shall be installed as noted by NER 481 and ICC ESR 1387 February 2019 recommendations.
2. Grade/ Manufacturer's Stamp: Timberstrand structural composite lumber delivered to the project shall be stamped by the manufacturer.

MICROLLAM BEAM (LVL) NOTES

1. Installation: Microllam - laminated veneer lumber (LVL) is manufactured from thin sheets of veneer structural bonded together by Weyerhaeuser, shall be installed as noted by ICC ESR 1387 February 2019 recommendations.
2. Grade/Manufacturers Stamp: Microllam beams delivered to the project shall be stamped by the manufacturer. Grode Fb=2900psi and Modulus of Elasticity E=1.9X10<sup>6</sup> psi minimum.

PARALLAM BEAM NOTES:

1. Installation: Parallam beams, made of parallel strand lumber, by Weyerhaeuser, shall be installed as noted by NER 481 and ICC ESR 1387 February 2019 recommendations.
2. Grade/Manufacturer's Stamp: Parallam beams delivered to the project shall be stamped by the manufacturer.
3. Exterior Beams: Exterior exposed PSL members are to be Wolmanized PSL approved for exterior use. Any field alterations shall be performed, treated and sealed according to manufacturer's recommendations. Surface damage shall also be treated and sealed according to manufacturer's recommendations.
4. Preserve-Treated Beams: Fasteners for preservative-treated beams shall be hot dipped zinc-coated galvanized steel per ASTM A 153 or stainless steel. Fasteners other than nails, timber rivets, wood screws and lag screws shall be permitted to be of mechanically deposited zinc coated steel with coating weights in accordance with ASTM B 695, Class 55 minimum. All other steel to be hot dipped zinc-coated galvanized or stainless steel.

STRONG-WALL WOOD SHEARWALL NOTES:

1. Strong-Wall Wood Shear Wall by Simpson Strong-Tie Company Inc.
2. ICC-ES ESR-2652; LA RR 25730
3. The contractor shall verify all dimensions, conditions, elevations, etc. prior to install of any components for the Stong-Wall SB System. If any discrepancies are found, they shall be brought to the attention of the engineer prior to construction.
4. All panels may be field trimmed to a minimum of 74.5". Trim height from top of panel only, do not trim from sides or bottom. Drilling holes in the panel is not allowed except as shown in these drawings or Simpson Strong-Wall Wood Shearwall catalog.
5. Anchor-bolt nuts shall be snug tight.
6. Maximum shim thickness between the shearwall and top plats of header is ".
7. Seismic design based on R-6.5
8. Use Simpson Anchor-Bolt Templates for anchor bolt installation. Templates are reversible.
9. All panels are 3.5" thick.
10. A 2x6 minimum full-height stud is required each side for panels over 18ft. tall. Attached with 10d@16"o.c.

ADHERED VENEER NOTES:

1. All veneer shall be adhered veneer. Adhered veneer shall be per TMS 402-11/ACI 530-11/ASCE 5-11
2. See architectural plans and details for veneer material type, backing material and assembly and installation details.
3. Unit size: Adhered veneer units shall not exceed 2a" in specified thickness, 36" in any face dimension, nor more than 5 ft² in total face area, and shall not weigh more than 15 psf. (ACI 530, 6.3.2.1)
4. Backing: Backing shall provide a continuous, moisture-resistonct surface to receive the adhered veneer. See architectural detail. (ACI 530, 6.3.2.3)
5. Adhesion developed between adhered veneer units and backing shall have a shear strength of at least 50 psi based on gross unit surface area when tested in accordance with ASTM C482, or shall be adhered in compliance w/th Article 3.3C of TMS 602/ACI 530.1/ASCE 6. (ACI 530, 6.3.2.4)

SPECIAL INSPECTION NOTES:

1. General: In addition to the inspections required by section 110 of the 2019 CBC, the owner shall employ a special inspector during construction on the following types of work. All special inspections shall be performed in accordance with Chapter 17 of the 2019 CBC.
2. Concrete: See Special Inspection Sheet
3. Structural Steel: See Special Inspection Sheet
4. Structural masonry: See Special Inspection Sheet
5. Structural Wood: See Special Inspection Sheet
- A. Period inspection is required for all nailing, bolting, anchoring and other fastening of components within the seismic-force-resisting system, including:
- a. Wood shear walls
  - b. Wood diaphragms
  - c. Drag struts and collectors
  - d. Shear panels
  - e. Hold-downs
  - f. Braces
- Note: Special inspection is not required for wood shear walls, shear panels and diaphragms including nailing, bolting, anchoring and other fastening to other components of the seismic-force-resisting system, where the fastener spacing of the sheathing is more than 4"o.c.
8. Selection of the Special Inspector: The owner shall submit to the Architect a list of 3 firms chosen to perform the special inspection duties. The special inspection firm shall have at least 5 years of experience in the work to be inspected. The Architect shall recommend a firm from those submitted.
9. Field Inspector: All field inspectors shall have a minimum of 2 years experience in the specific construction being inspected

Earthquake Design Data

1. Risk Category II
2. Seismic importance factor I = 1.0
3. Mopped spectral response accelerations  
Ss = 1.39  
S1 = 0.494
4. Site Closs = D
5. Spectral response coefficients  
SOS 1.218  
SD1 = 0.739
6. Seismic design category = D
7. Basic seismic force resisting systems  
a. Light-frame (wood) wall sheathed with wood structural panels  
b.
8. Design base shear V = 155 Kips
9. Seismic response coefficients  
a. Cs = 0.244  
b. Cs =
10. Response modification factors  
a. R= 5  
b. R=
11. Equivalent Lateral Force Design Procedure
12. Redundancy p = 1.3
13. Overstrength Co = 2.5

Basic Wind Design Data

1. Ultimate Design Wind Speed, Vult = 95 mph  
Nominal Design Wind Speed, Vasd = Vult\*sqrt(0.6) = 85.2 mph
2. Risk Category, II
3. Wind Exposure C
4. Internal Pressure Coefficient = ±0.18
5. Components & Cladding Design Wind Pressure qz = 26 psf

TYPICAL ABBREVIATIONS

AB	ANCHOR BOLT
ABV	ABOVE
ACI	AMERICAN CONCRETE INSTITUTE
ADD'L	ADDITIONAL
AISC	AMERICAN INSTITUTE OF STEEL CONSTRUCTION
APA	AMERICAN PLYWOOD ASSOCIATION
APPROX	APPROXIMATE
ARCH	ARCHITECT
ARCH'L	ARCHITECTURAL
ASTM	AMERICAN SOCIETY FOR TESTING & MATERIALS
AWS	AMERICAN WELDING SOCIETY
BLW	BELOW
BLD'G	BUILDING
BLK	BLOCK
BLK'G	BLOCKING
BN	BEAM
BOF	BOUNDARY NAILING
BTM	BOTTOM OF FOOTING
BTWN	BOTTOM
	BETWEEN
CALCS	CALCULATIONS
CANT	CANTILEVER
CBC	CALIFORNIA BUILDING CODE
CF	CUBIC FOOT
CJ	CONTROL JOINT
CLR	CLEAR
COL	COLUMN
CONC.	CONCRETE
CONST	CONSTRUCTION
CONT	CONTINUOUS
CONTR	CONTRACTOR
CTR	CENTER(ED)
CTSK	COUNTERSINK

D	DEPTH
DBL	DOUBLE
DFB	DOUGLAS FIR
DIA,	DIAMETER
DIAPH	DIAPHRAGM
DIM	DIMENSION
DKG	DECKING
DL	DEAD LOAD
DTL	DETAIL
DWG	DRAWING
DWL	DOWEL

(E)	EXISTING
EA	EACH
EE	EACH END
EF	EACH FACE
ELEV	ELEVATION
EN	EDGE NAIL
ENGR	ENGINEER
EQ	EQUAL
EQUIP	EQUIPMENT
ES	EACH SIDE
EW	EACH WAY
FDN	FOUNDATION
FLR	FLOOR
FN	FIELD NAIL
FOC	FACE OF CONCRETE
FOS	FACE OF STUD
FRM'G	FRAMING
FT	FEET (FOOT)
FTG	FOOTING

go.	GUAGE
GALV	GALVANIZED
GEN	GENERAL
GLB	GLUED LAMINATED BEAM
GRD	GRADE

HD	HOLDOWN
HDR	HEADER
HGR	HANGER
HSS	HOLLOW STRUCTURAL SECTION
HT	HEIGHT

IN	INCHES
INFO	INFORMATION
INTER	INTERMEDIATE

JST	JOIST
KSI	KIPS PER SQUARE INCH
KO	KNOCK OUT
KP	KING POST

TYPICAL ABBREVIATIONS (CONT.)

LAT	LATERAL
LBS, #	POUNDS
LF	LINEAR FEET (FOOT)
LL	LIVE LOAD
LONG	LONGITUDINAL
LSL	TIMBER STRAND
LVL	MICROLAM
MAT'L	MATERIAL
MAX	MAXIMUM
MB	MACHINE BOLT
MECH'L	MECHANICAL
MEMB	MEMBRANE
MANF	MANUFACTURER
MIN	MINIMUM
MISC	MISCELLANEOUS
MTL	MATERIAL
(N)	NEW
N/A	NON APPLICABLE
NO	NUMBER
NOM	NOMINAL
NTS	NOT TO SCALE

QC	ON CENTER
OD	OUTSIDE DIAMETER
OP'NG	OPENING
OPP	OPPOSITE
OPT'L	OPTIONAL
PA	POST ABOVE
PB	POST BELOW
PAR	PARALLEL
PEN	PENETRATION
PERP	PERPENDICULAR
PL	PLATE
PLF	POUNDS PER LINEAR FOOT
PLY	PLYWOOD
PRELIM	PRELIMINARY
PSF	POUNDS PER SQUARE FOOT
PSI	POUNDS PER SQUARE INCH
PSL	PARALLAM
PT	PRESSURE TREATED

QTY	QUANTITY
REF	REFERENCE
REINF	REINFORCEMENT
REQ'D	REQUIRED
RET	RETAINING
REV	REVISION
RND	ROUND

SCHED	SCHEDULE
SF	SQUARE FEET (FOOT)
SHT	SHEET
SHT'G	SHEATHING
SIM	SIMILAR
SN	SILL NAIL
SOG	SLAB ON GRADE
SPEC	SPECIFICATION
SQ	SQUARE
SS	SELECT STRUCTURAL
STD	STANDARD
STL	STEEL
STRL	STRUCTURAL
SY	SQUARE YARD

T	TOP
T & B	TOP AND BOTTOM
T & G	TONGUE AND GROOVE
THRD	THREADED
THKN	THICKENED
TL	TOTAL LOAD
TOE NAIL	TOE NAIL
TOS	TOP OF SHEATHING
TRANV	TRANSVERSE
TYP	TYPICAL

UNO UNLESS NOTED OTHERWISE

VAR	VARIES
VERT	VERTICAL
VIF	VERIFY IN FIELD
VL	VERSA-LAM
W/	WITH
WO	WITHOUT
WF	WIDE FLANGE
WS	WELDED STUD
W.S.	WOOD SCREWS

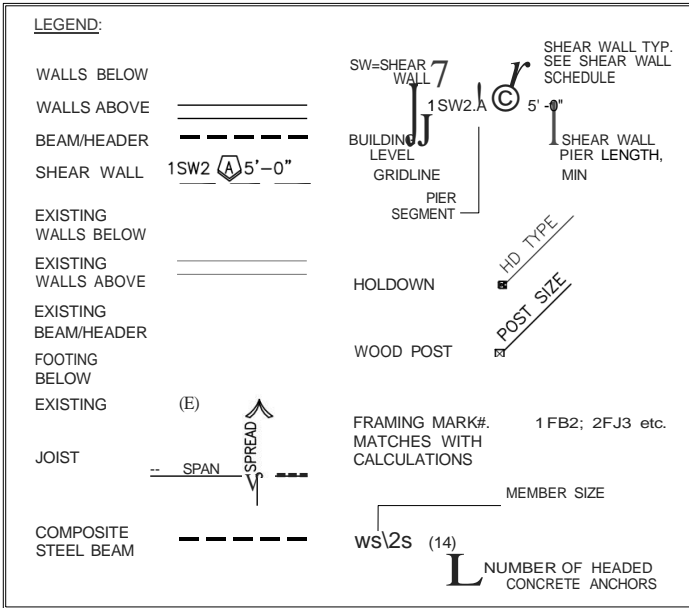
CITY OF NEWPORT BEACH  
COMMUNITY DEVELOPMENT DEPARTMENT | BUILDING DIVISION  
STRUCTURAL OBSERVATION GENERAL NOTES

1. STRUCTURAL OBSERVATION IS REQUIRED FOR THIS PROJECT IN ACCORDANCE WITH CBC 1710. STRUCTURAL OBSERVATION IS THE VISUAL OBSERVATION OF THE STRUCTURAL SYSTEM BY A LICENSED DESIGN PROFESSIONAL FOR GENERAL CONFORMANCE TO THE APPROVED CONSTRUCTION DOCUMENTS.
2. STRUCTURAL OBSERVATION DOES NOT WAIVE THE RESPONSIBILITY FOR THE REQUIRED INSPECTIONS BY THE CITY OF NEWPORT BEACH.
3. THE OWNER SHALL EMPLOY A LICENSED DESIGN PROFESSIONAL TO PERFORM STRUCTURAL OBSERVATION SITE VISITS, AND TO ISSUE ALL STRUCTURAL OBSERVATION REPORTS.
4. THE DESIGN ENGINEER SHALL IDENTIFY THE REQUIRED STRUCTURAL OBSERVATION SITE VISITS ON THE STRUCTURAL OBSERVATION SCHEDULE.
5. THE REQUIRED SITE VISITS SHALL AT A MINIMUM INCLUDE THE FOLLOWING:  
A. OBSERVATION OF THE FOUNDATION SYSTEM PRIOR TO FINAL CONCRETE POUR.  
B. OBSERVATION OF BUILDING FRAMING PRIOR TO CALLING FOR THE CITY OF NEWPORT BEACH "COMPLETE FRAMING INSPECTION"; AND,  
C. FINAL OBSERVATION OF THE COMPLETED STRUCTURE.  
ADDITIONAL SITE VISITS MAY BE NEEDED AS DETERMINED BY THE DESIGN ENGINEER OR STRUCTURAL OBSERVER.
6. THE STRUCTURAL OBSERVER SHALL PREPARE A STRUCTURAL OBSERVATION REPORT FOR EACH STAGE OF CONSTRUCTION OBSERVED. THE CITY OF NEWPORT BEACH "STRUCTURAL OBSERVATION REPORT" FORM OR A SIMILARLY FORMATTED REPORT, SHALL BE USED FOR ALL STRUCTURAL OBSERVATION REPORTS.
7. IF THE CITY'S FORM IS NOT USED, REPORTS SHALL BE ON STRUCTURAL OBSERVERS LETTERHEAD, STATE SITE ADDRESS, PLAN CHECK & PERMIT NUMBERS, STAGES & ELEMENTS OBSERVED, DATE OBSERVED, & COMPLETE CONTACT INFORMATION FOR STRUCTURAL OBSERVER.
8. ALL STRUCTURAL OBSERVATION REPORTS, REGARDLESS OF FORM USED, SHALL INCLUDE THE LICENSE STAMP & SIGNATURE OF THE STRUCTURAL OBSERVER RESPONSIBLE FOR THE PROJECT.
9. EACH STRUCTURAL OBSERVATION REPORT SHALL BE GIVEN TO THE OWNER OR OWNER'S REPRESENTATIVE, PROJECT CONTRACTOR, AND THE BUILDING INSPECTOR.
10. THE CONTRACTOR SHALL RESOLVE ALL DEFICIENCIES & THE FINAL STRUCTURAL OBSERVATION REPORT ISSUED PRIOR TO FINAL INSPECTION OR ACCEPTANCE OF STRUCTURAL WORK BY THE BUILDING INSPECTOR.
11. THE FINAL STRUCTURAL OBSERVATION REPORT SHALL STATE THAT THE STRUCTURAL SYSTEM CONFORMS TO THE APPROVED CONSTRUCTION DOCUMENTS & THAT ALL PREVIOUSLY OBSERVED DEFICIENCIES HAVE BEEN CORRECTED.
12. FINAL INSPECTION OR OTHER ACCEPTANCE OF THE STRUCTURAL SYSTEM BY THE CHIEF BUILDING OFFICIAL, OR DESIGNEE, WILL NOT OCCUR UNTIL THE FINAL STRUCTURAL OBSERVATION REPORT IS RECEIVED.
13. THE LICENSED DESIGN PROFESSIONAL IN RESPONSIBLE CHARGE SHALL PREPARE ALL CONSTRUCTION DOCUMENT CHANGES RELATING TO THE STRUCTURAL SYSTEMS. REVIEW & APPROVAL OF SUCH CHANGES BY THE CHIEF BUILDING OFFICIAL, OR DESIGNEE, SHALL BE OBTAIN BY THE DESIGN PROFESSIONAL AND/OR CONTRACTOR PRIOR TO INSTALLATION AND/OR CONSTRUCTION OF SAID CHANGES.

STRUCTURAL OBSERVATION SCHEDULE

SITE ADDRESS: 1616 WEST OCEANFRONT, NEWPORT BEACH, CA., 92663		PC #:
TO BE COMPLETED BY THE DESIGN ENGINEER, AND INCLUDED ON THE CONSTRUCTION DRAWINGS. BASED ON THE PROJECT SCOPE, PLEASE IDENTIFY THE ELEMENTS AND/OR CONNECTIONS THAT REQUIRE STRUCTURAL OBSERVATION. SPECIFY THE INTERVAL OR STAGE OF CONSTRUCTION WHEN THE STRUCTURAL OBSERVATION WILL BE PERFORMED.		
TYPE	STRUCTURAL ELEMENTS AND/OR CONNECTIONS TO BE OBSERVED	SCHEDULED INTERVAL OR STAGE OF CONSTRUCTION
FOUNDATIONS	<input checked="" type="checkbox"/> FOOTINGS, SLAB FOUNDATION, ANCHORS	<b>OBSERVATION - AFTER REBAR INSTALLATION BEFORE CONCRETE IS PLACED</b>
	<input type="checkbox"/> MAT FOUNDATION, PRESTRESSED CONC. SLAB	
	<input type="checkbox"/> CAISSON, PILE, GRADE BEAM	
	<input type="checkbox"/> OTHER:	
SHEAR WALLS	<input type="checkbox"/> CONCRETE	
	<input type="checkbox"/> MASONRY	
	<input checked="" type="checkbox"/> WOOD OR MANUFACTURED SHEAR PANELS	<b>BEFORE PAPER AND FINISHES APPLIED</b>
	<input type="checkbox"/> OTHER:	
FRAMES	<input type="checkbox"/> STEEL MOMENT OR BRACED FRAME	
	<input type="checkbox"/> CONCRETE MOMENT FRAME	
	<input type="checkbox"/> MASONRY WALL FRAME	
	<input type="checkbox"/> OTHER:	
DIAPHRAGMS	<input type="checkbox"/> CONCRETE	
	<input type="checkbox"/> STEEL DECK	
	<input checked="" type="checkbox"/> WOOD	<b>BEFORE FINISHES APPLIED</b>
	<input type="checkbox"/> OTHER:	
FINAL	<input checked="" type="checkbox"/> FINAL OBSERVATION & REPORT	<b>AFTER STRUCTURAL ITEMS COMPLETE BEFORE FINISHES APPLIED</b>

FORMS/STRUCTURAL OBSERVATION GENERAL NOTES & SCHEDULE 10-2011



GENERAL STRUCTURAL NOTES

Statement of Special Inspections, 2016 CBC

Project: SMITHS RESIDENCE  
Loco(on): 1616 W OCEANFRONT., NEWPORT BEACH, CA., 92663

This Statement of Special Inspection is submitted in fulfillment of the requirements of CBC Sections 1704 and 1705. Included are:

- Schedule of Special Inspections and tests applicable to this project:
  - Special Inspections per Sections 1704 and 1705
  - Special Inspections for Seismic Resistance
  - Special Inspections for Wind Resistance
- List of the Testing Agencies and other special inspectors that will be retained to conduct the tests and inspections.

Special Inspections and Testing will be performed in accordance with the approved plans and specifications, this statement and CBC sections 1704, 1705, 1706, 1707, 1708, 1709.

The Schedule of Special Inspections and Tests summarizes the Special Inspections and tests required. Special Inspections will refer to the approved plans and specifications for detailed special inspection requirements. Any additional tests and inspections required by the approved plans and specifications will also be performed.

Interim reports will be submitted to the Building Official and the Registered Design Professional in Responsible Charge in accordance with CBC section 1704.2.4.

A Final Report of Special Inspections and Tests documenting required Special Inspections and correction of any discrepancies noted in the inspections shall be submitted prior to issuance of a Certificate of Use and Occupancy (Section 1704.2.4). The Final Report will document:

- Required special inspections and tests.
- Correction of discrepancies noted in inspections or tests.

The Owner recognizes his or her obligation to ensure that the construction complies with the approved permit documents and to implement this program of special inspections. The Owner shall employ and pay directly one or more approved agencies to provide special inspections and tests as required in CBC section 1704.2. The owner shall identify the approved agencies to the building official.

This plan has been developed with the understanding that the Building Official will:

- Review and approve the qualifications of the Special Inspectors who will perform the inspections.
- Monitor special inspection activities on the job site to assure that the Special Inspectors are qualified and are performing their duties as called for in this Statement of Special Inspection.
- Review submitted inspection reports.
- Perform inspections os required by the local building code.

Seismic Requirements (Section 1705.12)

Description of seismic-force-resisting system and designated seismic systems subject to special inspections as per Section 1704.3.2:
Light framed wood walls sheathe with wood structural panels
Masonry reinforced shearwalls
The extent of the seismic-force-resisting system is defined in more detail in the construction documents.

Wind Requirements (Section 1705.11)

Description of main wind-force-resisting system and designated wind resisting components subject to special inspections in accordance with Section 1704.3.3:
Light framed wood walls sheathe with wood structural panels
Masonry reinforced shearwalls
The extent of the main wind-force-resisting system and wind resisting components is defined in more detail in the construction documents.

Schedule of Special Inspection

Notation Used in Table:

Column Headers:

- C Indicates continuous inspection is required.
- P Indicates periodic inspections are required. The notes and or contract documents should clarify.

Box entries:

X Is placed in the appropriate column to denote either "C" continuous or "p" periodic inspections. Denotes an activity that is either a one-time activity or one whose frequency is defined in some other manner.

Additional detail regarding inspections and tests are provided in the project specifications or notes on the drawings.

TABLE 1705.2.2  
REQUIRED VERIFICATION AND INSPECTION OF STEEL CONSTRUCTION OTHER THAN STRUCTURAL STEEL

VERIFICATION AND INSPECTION	CONTINUOUS	PERIODIC	REFERENCED STANDARD
1. Material verification of cold-formed steel deck:			
a. Identification markings to conform to ASTM standards specified in the approved construction documents.		X	Applicable ASTM material standards
b. Manufacturer's certified test reports.		X	
2. Inspection of welding:			
a. Cold-formed steel deck:			
1) Floor and roof deck welds.		X	AWSD D1.3
b. Reinforcing steel:			
1) Verification of weldability of reinforcing steel other than ASTM A 706.		X	AWS D1.4 ACI 318 Section 3.5.2
2) Reinforcing steel resisting flexural and axial forces in intermediate and special moment frames, and boundary elements of special structural walls of concrete and shear reinforcement.	X		
3) Shear reinforcement.	X		
4) Other reinforcing steel.		X	

a. See also Special Inspections for Wind and Seismic resistance.

TABLE 1705.3  
REQUIRED SPECIAL INSPECTIONS AND TESTS OF CONCRETE CONSTRUCTION

VERIFICATION AND INSPECTION	C	P	REFERENCE STANDARD	IBC REFERENCE
1. Inspect reinforcement, including prestressing tendons, and verify placement		X	ACI 318: 20, 25.2 25.3, 26.5.1-26.5.3	1908.4
2. Reinforcement bar welding:				
a. Verify weldability of reinforcing bars other than ASTM A706		X	AWS D1.4 ACI 318: 26.5.4	
b. Inspect single-poss fillet welds, maimum f6	X	X		X
c. Inspect all other welds.				
3. Inspect anchors cast in concrete		X	ACI 318: 17.8.2	
4. Inspect anchors post-install in hardened concrete members.b				
a. Adhesive anchors installed horizontally or upwardly inclined orientations to resist sustained tension loads.	X		ACI 318: 17.8.2.4	
b. mechanical anchors and adhesive anchors not defined in 4.a.		X	ACI 318: 17.8.2	
5. Verify use of required design mix.		X	ACI 318: Ch. 19, 26.4.3, 26.4.4	1904.1, 1904.2, 1908.2, 1908.3
6. Prior to concrete placement, fabricate specimens for strength, test, perform slump and air content test, and determine the temperature of the concrete.	X		ASTM C172 ASTM C31 ACI 318: 26.4, 26.12	1908.10
7. Inspect concrete and shotcrete placement for proper application techniques.	X		ACI 318: 26.4.5	1908.6, 1908.7, 1908.8
8. Verify maintenance of specified curing temperature and techniques		X	ACI 318: 26.4.7-26.4.9	1908.9
9. Inspection of prestressed concrete for:				
a. Application of prestressing forces.	X		ACI 318: 26.9.2.1	
b. Grouting of bonded prestressing tendons	X		ACI 318: 26.9.2.3	
10. Inspect erection of precast concrete members.		X	ACI 318: Ch.26.8	
11. Verification of in-situ concrete strength, prior to stressing of tendons in post-tensioned concrete and prior to removal of shores and forms from beams and structural slob.		X	ACI 318: 26.10.2	
12. Inspect formwork for shape, location and dimensions of the concrete member being formed.		X	ACI 318: 26.10.1(b)	

a. Where applicable, see also Section 1705.12, Special inspection for seismic resistance

b. Specific requirements for special inspection shall be included in the research report for the anchor issued by on approved source in accordance with 17.8.2 in ACI 318, or other qualification procedures. Where specific requirements are not provided, special inspection requirements shall be specified by the registered design professional and shall be approved by the building official prior to the commencement of work.

SECTION 1705.12 SPECIAL INSPECTIONS FOR SEIMISC RESISTANCE

TYPE	CONTINUOUS	PERIODIC	REFERENCED STANDARD
1. 1705.12.1 Structural Steel			
a. 1705.12.1.1 Seismic force resisting systems - See AISC 341 special inspection requirements			AISC 341
b. 1705.12.1.2 Structural Steel Elements - See AISC 341 special inspection requirements			AISC 341
2. 1705.12.2 Structural Wood			
a. Field gluing operations of elements of the seismic force-resisting system.	X		
b. Nailing, bolting, anchoring and other fastening of elements of the seismic force-resisting system, including wood sheer walls, wood diaphragms, dreg struts, braces, shear panels and hold-downs.		X	
3. 1705.12.3 Cold-formed steel light frame construction			
a. Welding Operation of elements of the seismic force-resisting system		X	
b. Screw ottachment, bolting, anchoring and other fastening of elements of the seismic force-resisting system, including shear wells, braces, diaphragms, collectors (drag struts) and hold-downs.		X	
4. 1705.12.4 Designated seismic systems			
a. Special inspector shall examine designated seismic systems requiring seismic qualification in accordance with Section 13.2.2 of ASCE 7 and verify that the label, anchorage and mounting conform to the certificate of compliance.			
5. 1705.12.7 Storage Racks			
a. Anchorage of storage racks thot are 8 feet or greater in height		X	
6. 1705.12.8 Cold-formed steel special bolted moment frames			
a. Installation of cold-formed steel special bolted moment frames		X	

TABLE 1705.6  
REQUIRED SPECIAL INSPECTIONS AND TESTS OF SOILS

TYPE	CONTINUOUS SPECIAL INSPECTION	PERIODICALLY SPECIAL INSPECTION
1. Verify materials below shallow foundations are adequate to achieve the design bearing capacity.		X
2. Verify excavations are extended to proper depth and have reached proper material.		X
3. Perform classification and testing of compacted fill materials		X
4. Verify use of proper materiols, densities and lift thickness during placement and compaction of compacted fill.	X	
5. Prior to placement of compacted fill, observe		



CHAPTER J

QUALITY CONTROL AND QUALITY ASSURANCE

The chapter is organized as follows:

- J1. SCOPE  
J2. Fabricator and Erector Documents  
J3. Quality Assurance Agency Documents  
J4. Inspection and Nondestructive Testing Personnel  
J5. Inspection Tasks  
J6. Welding Inspection and Nondestructive Testing  
J7. Inspection of High-Strength Bolting  
J8. Other Steel Structure Inspections  
J9. Inspection of Composite Structures  
J10. Inspection of Piling

J1. SCOPE

Quality Control (QC) as specified in this chapter shall be provided by the fabricator, erector or other responsible contractor as applicable. Quality Assurance (QA) as specified in this chapter shall be provided by others when required by the authority having jurisdiction (AHJ), applicable building code (ABC), purchaser, owner or engineer of record (EOR). Nondestructive testing (NOT) shall be performed by the agency or firm responsible for Quality Assurance, except as permitted in accordance with Specification Section N7.

J2. FABRICATOR AND ERECTOR DOCUMENTS

1. Documents to be Submitted for Steel Construction  
In addition to the requirements for Specification Section N3.1, the following documents shall be submitted for review by the engineer of record (EOR) or the EOR's designee, prior to fabrication or erection of the affected work, as applicable:

- (1) Welding procedure specifications (WPS)  
(2) Copies of the manufacturer's typical certificate of conformance for all electrodes, fluxes and shielding gasses to be used.  
(3) For demand critical welds, applicable manufacturer's certifications that the filler metal meets the supplemental notch toughness requirements, as applicable. Should the filler metal manufacturer not supply such supplemental certifications, the fabricator or erector, as applicable, shall have the necessary testing performed and provide the applicable test reports.  
(4) Manufacturer's product data sheets or catalog data for SMAW, FCAW and GMAW composite (cored) filler metals to be used.  
(5) Bolt installation procedures  
(6) Specific assembly order, welding sequence, welding technique, or other special precautions for joints or groups of joints where such items are designated to be submitted to the engineer of record.

2. Documents to be Available for Review for Steel Construction

Additional documents as required by the EOR in the contract documents, shall be available by the fabricator and erector for review by the EOR or the EOR's designee prior to fabrication or erection, as applicable.

The fabricator and erector shall retain their document(s) for at least one year after substantial completion of construction.

3. Documents to be Submitted for Composite Construction

The following documents shall be submitted by the responsible contractor for review by the EOR or the EOR's designee, prior to concrete production or placement, as applicable:

- (1) Concrete mix design and test reports for the mix design  
(2) Reinforcing steel shop drawings  
(3) Concrete placement sequences, techniques and restriction.

4. Documents to be Available for Review for Composite Construction

The following documents shall be available from the responsible contractor for review by the EOR or the EOR's designee prior to fabrication or erection, as applicable, unless specified to be submitted:

- (1) Material test reports for reinforcing steel  
(2) Inspection procedures  
(3) Nonconformance procedure  
(4) Material control procedure  
(5) Welder performance qualification records (WPQR) as required by AWS D1.4/D1.4M  
(6) QC Inspector qualifications

The responsible contractor shall retain their document(s) for at least one year after substantial completion construction.

J3. QUALITY ASSURANCE AGENCY DOCUMENTS

The agency responsible for quality assurance shall submit the following documents to the authority having jurisdiction, the engineer of record, and the owner or owner's designee:

- (1) QA agency's written practices for the monitoring and control of the agency's operations. The written practice shall include:
- (i) The agency's procedures for the selection and administration of inspection personnel, describing the training, experience and examination requirements for qualification and certification of inspection personnel, and
- (ii) The agency's inspection procedures, including general inspection, material controls, and visual welding inspection
- (2) Qualifications of management and QA personnel designated for the project  
(3) Qualification records for inspectors and NDT technicians designated for the project  
(4) NOT procedures and equipment calibration records for NDT to be performed and equipment to be used for the project  
(5) For composite construction, concrete testing procedures and equipment

J4. INSPECTION AND NONDESTRUCTIVE TESTING PERSONNEL

In addition to the requirements of Specification Sections N4.1 and N4.2, visual welding inspection and nondestructive testing (NDT) shall be conducted by personnel qualified in accordance with AWS D1.8/D1.8M clause 7.2. In addition to the requirements of Specification Section N4.3, ultrasonic testing technicians shall be qualified in accordance with AWS D1.8/D1.8M clause 7.2.4.

J5. INSPECTION TASKS

Inspection tasks and documentation for quality control (QC) and quality assurance (QA) for the seismic force resisting system (SFRS) shall be as provided in the tables in Sections J6, J7, J8, J9 and J10. The following entries are used in the tables:

1. Observe (O)

The inspector shall observe these functions on a random, daily basis. Operations need not be delayed pending observations.

2. Perform (P)

These inspections shall be performed prior to the final acceptance of the item.

3. Document (D)

The inspector shall prepare reports indicating that the work has been performed in accordance with the contract documents. The report need not provide detailed measurements for joint fit-up, WPS settings, completed welds, or other individual items listed in the tables. For shop fabrication, the report shall indicate the piece mark of the piece inspected. For field work, the report shall indicate the reference grid lines and floor or elevation inspected. Work not in compliance with the contract documents and whether the noncompliance has been satisfactorily repaired shall be noted in the inspection report.

4. Coordinated Inspection

Where a task is noted to be performed by both QC and QA, coordination of the inspection function between QC and QA is permitted in accordance with Specification Section N5.3.

- J6. WELDING INSPECTION AND NONDESTRUCTIVE TESTING

Welding inspection and nondestructive testing shall satisfy the requirements of the Specification, this section and AWS D1.8/D1.8M.

1. Visual Welding Inspection

All requirements of the Specification shall apply, except as specifically modified by AWS D1.8/D1.8M.

Visual welding inspection shall be performed by both quality control and quality assurance personnel. As a minimum, tasks shall be as listed in Tables J6-1, J6-2 and J6-3.

2. NOT of Welded Joints

In addition to the requirements of Specification Section N4.5, nondestructive testing of welded joints shall be required in this section:

- 2a. k-Area NDT

Where welding of double plates, continuity plates or stiffeners has been performed in the k-area, the web shall be tested for cracks using magnetic particle testing (MT). The MT inspection area shall include the k-area base metal within 3 in. (75mm) of the weld. The MT shall be performed no sooner than 48 hours following completion of the welding.

- 2b. CJP Groove Weld NOT

Ultrasonic testing (UT) shall be performed on 100% of CJP groove welds in materials o/s in. (8mm) thick or greater. Ultrasonic testing in materials less than o/s in. (8mm) thick is not required. Weld discontinuities shall be accepted or rejected on the basis of criteria of AWS D1.1/D1.1M Table 6.2. Magnetic particle testing shall be performed on 25% of all beam-to-column CJP groove welds. The rate of UT and MT is permitted to be reduced in accordance with Sections J6.2 and J6.2h, respectively.

Exception: For ordinary moment frames, UT and MT of CJP groove welds are required only for demand critical welds.

- 2c. Base Metal NDT for Lamellar Tearing and Laminations

After joint completion, base metal thicker than 1 1/2 in. (38mm) loaded in tension in the through-thickness direction in tee and corner joints, where the connected material is greater than 3/4 in. (19mm) and contains CJP groove welds shall be ultrasonically tested for discontinuities behind and adjacent to the fusion line of such welds. Any base metal discontinuities found within 1/4 of steel surface shall be accepted or rejected on the basis of criteria of AWS D1.1/D1.1M Table 6.2, where t is the thickness of the part subjected to the through-thickness strain

- 2d. Beam Cope and Access Hole NOT

At welded splices and connections, thermally cut surfaces of beam copes and access holes shall be tested using magnetic particle testing or penetrant testing, when the flange thickness exceeds 1 1/2 in. (38mm) for rolled shapes, or when the web thickness exceeds 1 1/2 in. (38mm) for built-up shapes.

- 2e. Reduced Beam Section Repair NDT

Magnetic particle testing shall be performed on any weld and adjacent area of the reduced beam section (RBS) cut surface that has been repaired by welding, or on the base metal of the RBS cut surface if a sharp notch has been removed by grinding.

- 2f. Weld Tab Removal Sites

At the end of weld where weld tabs have been removed, magnetic particle testing shall be performed on the same beam-to-column joints receiving UT as required under Section J6.2B. The rate of MT is permitted to be reduced in accordance with Section J6.2h. MT of continuity plate weld tabs removal sites is not required.

- 2g. Reduction of Percentage of Ultrasonic Testing

The reduction of percentage of UT is permitted to be reduced in accordance with Specification Section N5.5e, except no reduction is permitted for demand critical welds.

Specification Section 5e. Reduction of Rate of Ultrasonic Testing

The rate of UT is permitted to be reduced if approved by the EOR and AHJ. Where the initial rate for UT is 100%, the NDT rate for an individual welder or welding operator is permitted to be reduced to 25%, provided the reject rate, the number of welds containing unacceptable defects divided by the number of welds or welding operator. A sampling of at least 40 completed welds for a job shall be made for such reduction evaluation. For evaluating the reject rate of continuous welds over 3 ft. (1m) in length where the effective3 throat is 1 in. (25 mm) or less, each 12 in. (300 mm) increment or fraction thereof shall be considered as one weld. For evaluating the reject rate on continuous welds over 3 ft (1 m) in length where the effective throat is greater than 1 in. (25 mm), each 6 in. (150 mm) of length or fraction thereof shall be considered one weld.

- 2h. Reduction of Percentage of Magnetic Particle Testing

The amount of MT on CJP groove welds is permitted to be reduced if approved by the engineer of record and the authority having jurisdiction. The MT rate for an individual welder or welding operator is permitted to be reduced to 10%, provided the reject rate is demonstrated to be 5% or less of the welds tested for the welder or welding operator. A sampling of at least 20 completed welds for a job shall be made for such reduction evaluation. Reject rate is the number o weld containing rejectable defects divided by the number of welds completed. This reduction is prohibited on welds in the k-area, at repair sites, backing removal sites and access holes.

- J7. INSPECTION OF HIGH-STRENGTH BOLTING

Bolting inspection shall satisfy the requirements of Specification Section N5.6 and this section. Bolting inspection shall be performed by both quality control and quality assurance personnel. As a minimum, the tasks shall be as listed in Tables J7-1, J7-2 and J7-3.

- J8. OTHER STEEL STRUCTURE INSPECTIONS

Other inspections of the steel structure shall satisfy the requirements of Specification Section N5.7 and this section. Such inspections shall be performed by both quality control and quality assurance personnel. Where applicable, the inspection tasks listed in Table J8-1 shall be performed.

TABLE J6-1 Visual Inspection Tasks Prior to Welding				
Visual Inspection Tasks Prior to Welding	QC		QA	
	Task	Doc.	Task	Doc.
Material Identification (Type/Grade)	O		O	
Welder Identification system	O		O	
Fit-up of Groove Welds (including joint geometry)	P/O**		O	
Joint preparation				
Dimensions (alignment, root opening, root face, bevel)				
Cleanliness (condition of steel surfaces)				
Tacking (tack weld quality and location)	P/O**		O	
Backing type and fit (if applicable)				
Configuration and finish of access holes	O		O	
Fit-up of Fillet Welds	P/O**		O	
Dimensions (alignment, gaps at root)				
Cleanliness (condition of steel surfaces)				
Tacking (tack weld quality and location)				

\*\* Following performance of this inspection task for ten welds to be made by a given welder, with the welder demonstrating understanding of requirements and possession of skills and tools to verify these items, the Perform designation of this task shall be reduce to Observe, and the welder shall perform this task. Should the inspector determine that the welder has discontinued performance of this task, the task shall be returned to Perform until such time as the Inspector has re-established adequate assurance that the welder will perform the inspection tasks listed.

TABLE J6-2 Visual Inspection Tasks During Welding				
Visual Inspection Tasks Prior to Welding	QC		QA	
	Task	Doc.	Task	Doc.
WPS followed	O		O	
Settings on welding equipment				
Travel speed				
Selected welding materials				
Shielding gas type/flow rate				
Preheat applied				
Interpass temperature maintained (min./max.)				
Proper position (F, V, H, OH)	O		O	
Intermix of filler metals avoided unless approved				
Use of qualified welders	O		O	
Control and handling of welding consumables	O		O	
Packaging				
Exposure control	O		O	
Environmental conditions				
Wind speed within limits				
Precipitation and temperature	O		O	
Welding techniques				
Interpass and final cleaning				
Each pass within profile limitations				
Each pass meets quality requirements	O		O	
No welding over cracked tacks				

TABLE J6-3 Visual Inspection Tasks After Welding				
Visual Inspection Tasks After Welding	QC		QA	
	Task	Doc.	Task	Doc.
Welds cleaned	O		O	
Size, length, and location of welds	P		P	
Welds meet visual acceptance criteria	P	D	P	D
Crack prohibition				
Weld/base-metal fusion				
Crater cross section				
Weld profiles and size				
Undercut	P	D	P	D
Porosity				
Placement of reinforcing or contouring fillet welds (if required)	P	D	P	D
Backing removed, weld tabs removed and finished, and fillet welds added (if required)	P	D	P	D
Repair activities	P		P	D

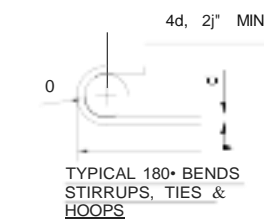
TABLE J7-1 Inspection Tasks Prior to Bolting				
Inspection Tasks Prior to Bolting	QC		QA	
	Task	Doc.	Task	Doc.
Proper fasteners selected for the joint detail	O		O	
Proper bolting procedure selected fro joint detail	O		O	
Connecting elements, including the appropriate faying surface condition and hole preparation, if specified, meet applicable requirements.	O		O	
Pre-installation verification testing by installation personnel observed for fastener assemblies and methods used	P	D	O	D
Proper storage provided for bolts, nuts, washers and other fastener components	O		O	

TABLE J7-2 Inspection Tasks During Bolting				
Inspection Tasks During Bolting	QC		QA	
	Task	Doc.	Task	Doc.
Fastener assemblies placed in all holes and washers (if required) are positioned as required	O		O	
Joint brought to the snug tight condition prior to the pretension operation	O		O	
Fastener component not turned by the wrench prevented from rotating	O		O	
Bolts are pretensioned progressing systematically from the most rigid point toward the free edges	O		O	

TABLE J7-3 Inspection Tasks After Bolting				
Inspection Tasks During Bolting	QC		QA	
	Task	Doc.	Task	Doc.
Document accepted and rejected connections	P	D	P	D

TABLE J8-1 Other Inspection Tasks				
Other Inspection Tasks	QC		QA	
	Task	Doc.	Task	Doc.
RBS requirements, if applicable	P	D	P	D
Contour and finish				
Dimensional tolerances	P	D	P	D
Protected zone-no holes and unapproved attachments made by fabricator or erector, as applicable				





LAP SPLICE SCHEDULE, CLASS B									
Fy=60 ksi		NORMAL-WEIGHT CONCRETE, 1.3i.							
BAR SIZE	f'c=2500 psi		f'c=3000 psi		f'c=4000 psi		f'c=5000 psi		ps
	TOP	OTHER	TOP	OTHER	TOP	OTHER	TOP	OTHER	
#3	25"	20"	23"	18"	20"	16"	18"	16"	
#4	41"	32"	38"	29"	33"	25"	29"	23"	
#5	59"	45"	54"	42"	47"	36"	42"	32"	
#6	79"	61"	72"	55"	62"	48"	56"	43"	
#7	125"	96"	114"	88"	99"	76"	88"	68"	
#8	153"	117"	139"	107"	121"	93"	108"	83"	
#9	172"	132	157"	121"	136"	105"	122"	94"	
#10	194"	149"	177"	133"	153"	118"	137"	106"	
#11	215"	165"	196"	151"	170"	131"	152"	117"	

STANDARD HOOK DEVELOPMENT l <sub>dh</sub>				
Fy=60 ksi	NORMAL-WEIGHT CONCRETE			
BAR SIZE	f'c=2500psi	f'c=3000psi	f'c=4000psi	f'c=5000psi
#3	9"	9"	8"	7"
#4	12"	11"	1a"	9"
#5	15"	14"	12"	11"
#6	18"	17"	15"	13"
#7	21"	20"	17"	15"
#8	24"	22"	19"	17"
#9	28"	25"	22"	20"
#10	31"	28"	25"	22"
#11	34"	31"	27"	24"
#14	41"	38"	33"	29"
#18	55"	50"	43"	39"

SEISMIC LAP SPLICE SCHEDULE, CLASS 8									
FY-60 ksi		NORMAL-WEIGHT		CONCRETE,		1.25[3].			
BAR SIZE	f'c=2500 psi		f'c=3000 psi		f'c=4000 psi		f'c=5000 psi		
	TOP	OTHER	TOP	OTHER	TOP	OTHER	TOP	OTHER	
#3	32"	24"	29"	22"	25"	20"	22"	20"	
#4	51"	39"	47"	36"	41"	31"	36"	28"	
#5	74"	57"	67"	52"	58"	45"	52"	40"	
#6	98"	76"	90"	69"	78"	60"	70"	54"	
#7	156"	120"	142"	110"	123"	95"	110"	85"	
#8	191"	147"	174"	134"	151"	116"	135"	104"	
#9	215"	165"	196"	151"	170"	131"	152"	117"	
#10	242"	186"	221"	170"	191"	147"	171"	132"	
#11	269"	207"	245"	189"	212"	164"	190"	146"	

SEISMIC HOOK DEVELOPMENT l <sub>dh</sub>					
Fy=60 ksi	NORMAL-WEIGHT CONCRETE, 1.25"l <sub>dh</sub>				
BAR SIZE	f'c=2500psi	f'c=3000psi	f'c=4000psi	f'c=5000psi	
#3	12"	11"	9"	8"	
#4	15"	14"	12"	11"	
#5	19"	18"	15"	14"	
#6	23"	21"	18"	16"	
#7	27"	24"	21"	19"	
#8	30"	28"	24"	22"	
#9	34"	31"	27"	24"	
#10	39"	35"	31"	27"	
#11	43"	39"	34"	30"	
#14	51"	47"	41"	36"	
#18	68"	62"	54"	48"	

MINIMUM SEISMIC DEVELOPMENT AND LAP LOCATIONS

A. SPECIAL CONCRETE SHEAR WALLS

- LAP OF VERTICAL REINFORCEMENT AT BASE OF WALL
- DEVELOPMENT OF REINFORCEMENT IN FOUNDATION ELEMENT
- DEVELOPMENT OF DIAGONAL REBAR OF COUPLER BEAMS INTO WALLS

8. SPECIAL CONCRETE MOMENT FRAMES

- DEVELOPMENT OF LONGITUDINAL BEAM REINFORCEMENT IN CONFINED CORE
- DEVELOPMENT OUTSIDE THE CONFINED CORE SHALL BE INCREASED
- COLUMN LONGITUDINAL REBAR DEVELOPMENT INTO FOUNDATION ELEMENT

2. SEE PLAN AND DETAILS FOR ADDITIONAL SEISMIC DEVELOPMENT AND LAP

NOTES:

1. TOP BARS ARE DEFINED AS HORIZONTAL REINFORCEMENT WHERE MORE THAN 12" OF FRESH CONCRETE IS PLACED BELOW THE BARS BEING DEVELOPED OR SPLICED
2. VALUES IN TABLES ABOVE ARE FOR NORMAL WEIGHT CONCRETE ONLY. INCREASE LENGTHS BY 33.3% (1.33) FOR LIGHTWEIGHT CONCRETE
3. #14 AND #18 REQUIRE WELDED SPLICE OR MECHANICAL SPLICE
4. FOR  $F_c$  GREATER THAN 5000 PSI, USE VALUES FOR  $F_c = 5000$  PSI.
5. FOR  $F_c < 4500$  PSI, USE VALUES FOR  $F_c = 4000$  PSI.

Figure 1: Reinforcement details for concrete wall/beam/foundation corner and intersection reinforcement. The figure contains seven diagrams showing various reinforcement configurations for cold joints and intersections. Each diagram includes labels for reinforcement bars (#4@12" o.c.), dimensions (e.g., 3.5" MIN TO, 6" MIN TO, 8" MIN TO), and references to plans and foundation details for additional requirements. The diagrams are arranged in two rows: the top row shows corner and intersection details, and the bottom row shows cold joint details. The diagrams are labeled with "COLD JOINT WHERE OCCURS" and "REINFORCEMENT DETAILS".

NOTES:

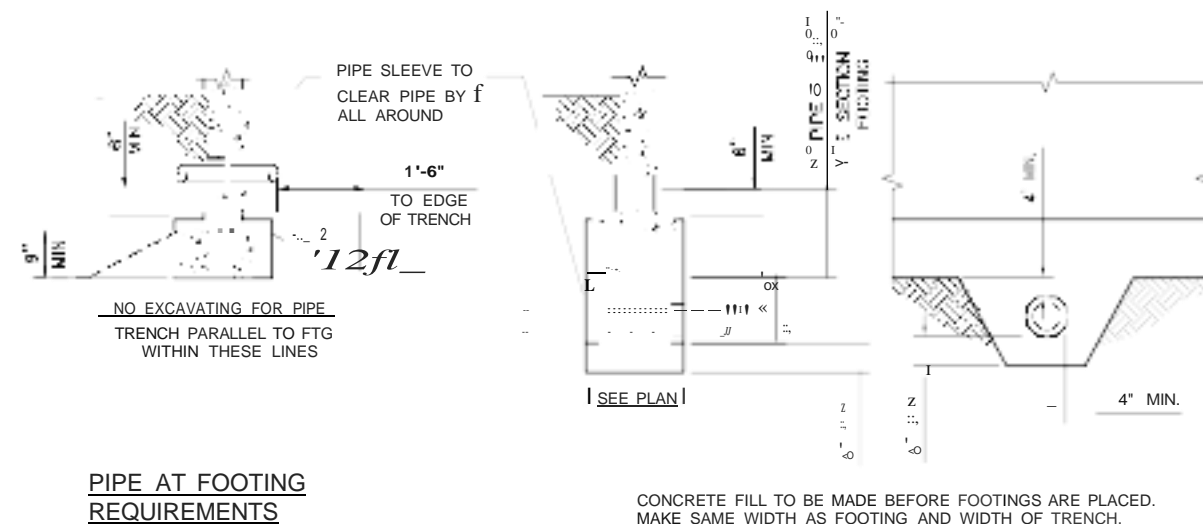
- FOR CURB SIZE AND LOCATION SEE PLANS, ARCHITECTURAL DRAWINGS AND OTHER TRADES.
- SEE CONCRETE WALL/BASEMENT FOUNDATION CORNER AND INTERSECTION DETAIL FOR CURB CORNER AND INTERSECTION REINFORCEMENT DETAILS.

NOTES:

1. FOR CURB SIZE AND LOCATION SEE PLANS, ARCHITECTURAL DRAWINGS AND OTHER TRADES.
2. SEE CONCRETE WALL/BEAM/FOUNDATION CORNER AND INTERSECTION DETAIL FOR CURB CORNER AND INTERSECTION REINFORCEMENT DETAILS.

### TYPICAL CURB REINFORCEMENT

## DETAIL



CONCRETE FILL TO BE MADE BEFORE FOOTINGS ARE PLACED  
MAKE SAME WIDTH AS FOOTING AND WIDTH OF TRENCH.

## STEPPED FOOTING

'T' SEE FOUNDATION PLAN  
FOR THICKNESS  
'H' SEE FOUNDATION PLAN  
OR 18" MAX

## DETAIL

scale  $\frac{3}{4}"=1'-0"$  (17)

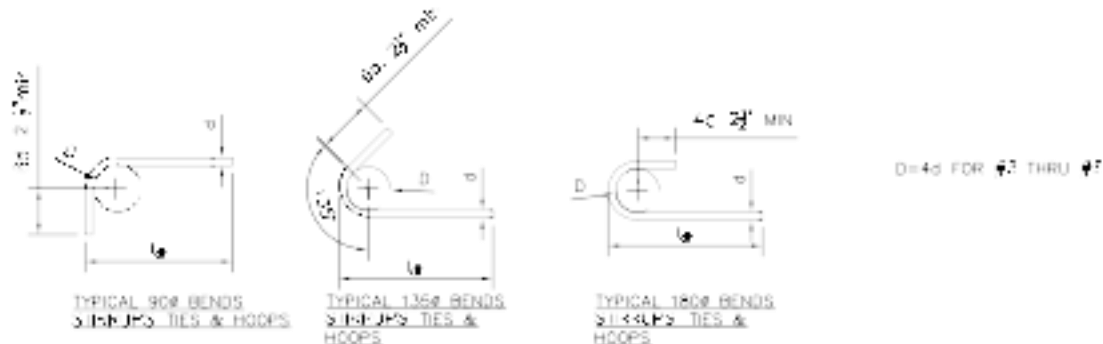
DETAIL

scale  $\frac{3}{4}"=1'-0"$  (19)

DETAIL

scale  $\frac{3}{4}"=1'-0"$  (20





STRAIGHT BAR DEVELOPMENT

BAR SIZE	FACTH (IN)
#3	14"
#4	14"
#5	17"
#6	18"
#7	21"
#8	24"
#9	27"
#10	30"
#11	36"

LAP SPUCE SCHEDULE

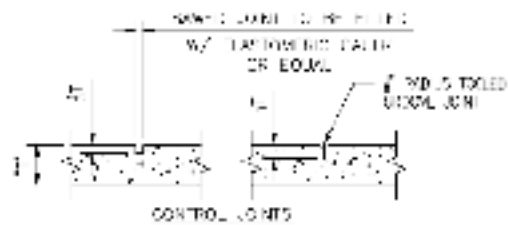
BAR SIZE	FACTH (IN)
#3	14"
#4	14"
#5	17"
#6	18"
#7	21"
#8	24"
#9	27"
#10	30"
#11	36"

STANDARD HOOK DEVELOPMENT  $l_d$

BAR SIZE	FACTH (IN)
#3	14"
#4	14"
#5	17"
#6	18"
#7	21"
#8	24"
#9	27"
#10	30"
#11	36"

- NOTES:
- MINIMUM TIE BAR SIZE = #3
  - FOR  $F_y = 60,000$  PSI
  - HOOKS SHOULD BE ON EXPOSED BARS

CMU WALL BENDS AND LAPS



NOTE:  
SLAB JOINTS SHALL BE INSTALLED AT INTERVALS NOT EXCEEDING 12'-0" IN BOTH DIRECTIONS (PREFERABLY A SQUARE PATTERN BUT NOT TO EXCEED 12'-0")

DETAIL

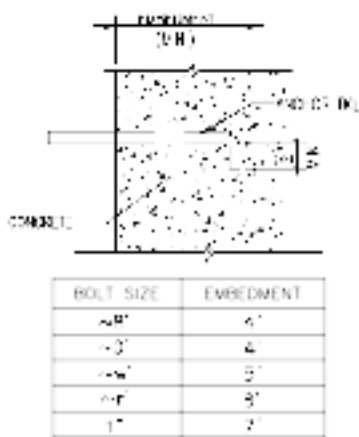
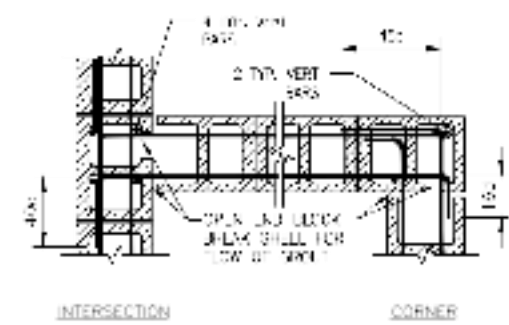
scale 1/2"=1'-0"

DETAIL

scale 1/2"=1'-0"

DETAIL

scale 1/2"=1'-0"



DETAIL

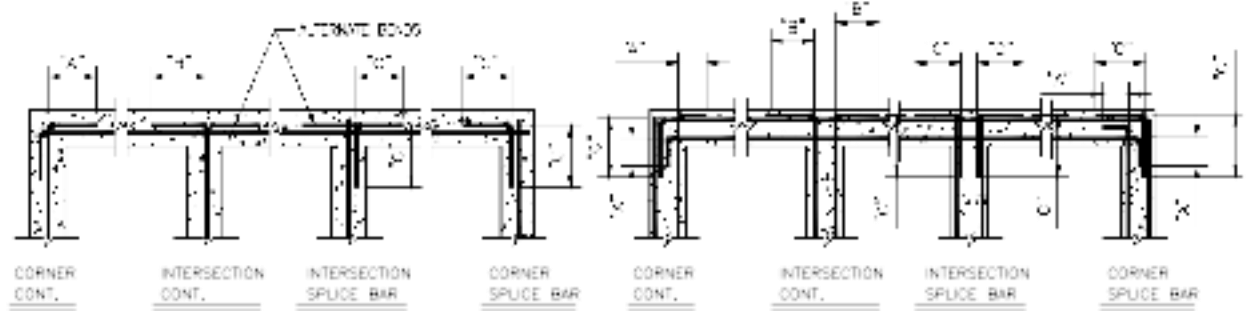
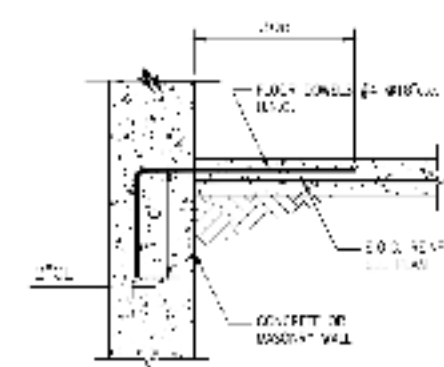
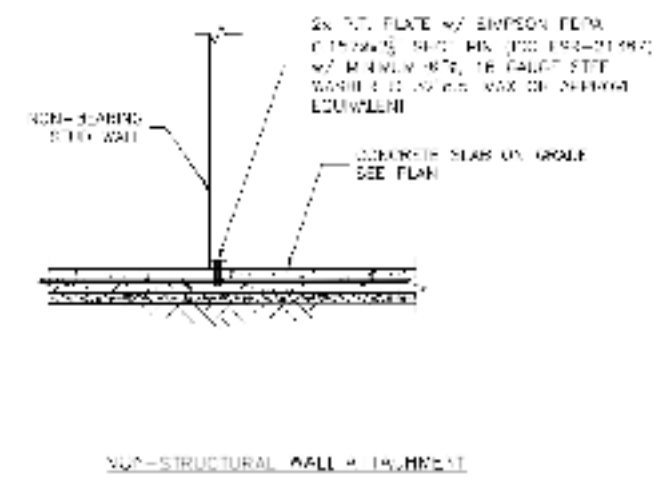
scale 1/2"=1'-0"

DETAIL

scale 3/4"=1'-0"

DETAIL

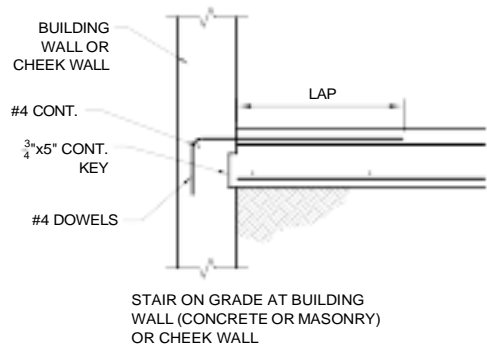
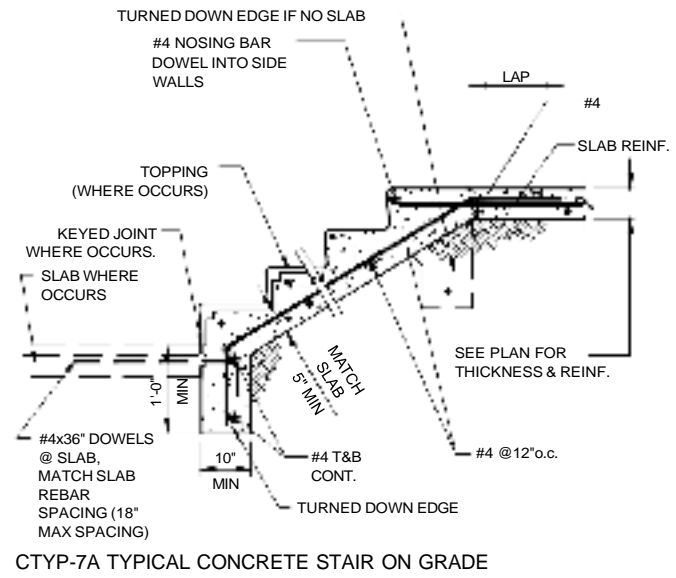
scale 3/4"=1'-0"



$l_d = 16d$  OR  $\frac{1}{2}$  SPECIFIED  $l_d$  WHICHEVER IS GREATER

$E$  &  $C$  = Lap length - See table for shear walls, frames and slabs

CONCRETE WALL/BEAM/FOUNDATION CORNER AND INTERSECTION REINFORCING



- NOTES:
- RISE AND RUN SEE ARCHITECTURAL DRAWINGS
  - CHECK WALL WHERE OCCURS, SHALL BE 8" THICK CONCRETE WALL WITH #4 @ 10" o.c. EACH WAY AT CENTER OF WALL
  - SEE ARCHITECTURAL FOR STAIR TOPPING
  - SEE TYPICAL LAP SPUCE DETAIL FOR LAP LENGTHS

DETAIL

scale 3/4"=1'-0"

DETAIL

scale 3/4"=1'-0"

DETAIL

scale 3/4"=1'-0"



DETAIL

scale 3/4"=1'-0" (1)

DETAIL

scale 3/4"=1'-0" (2)

DETAIL

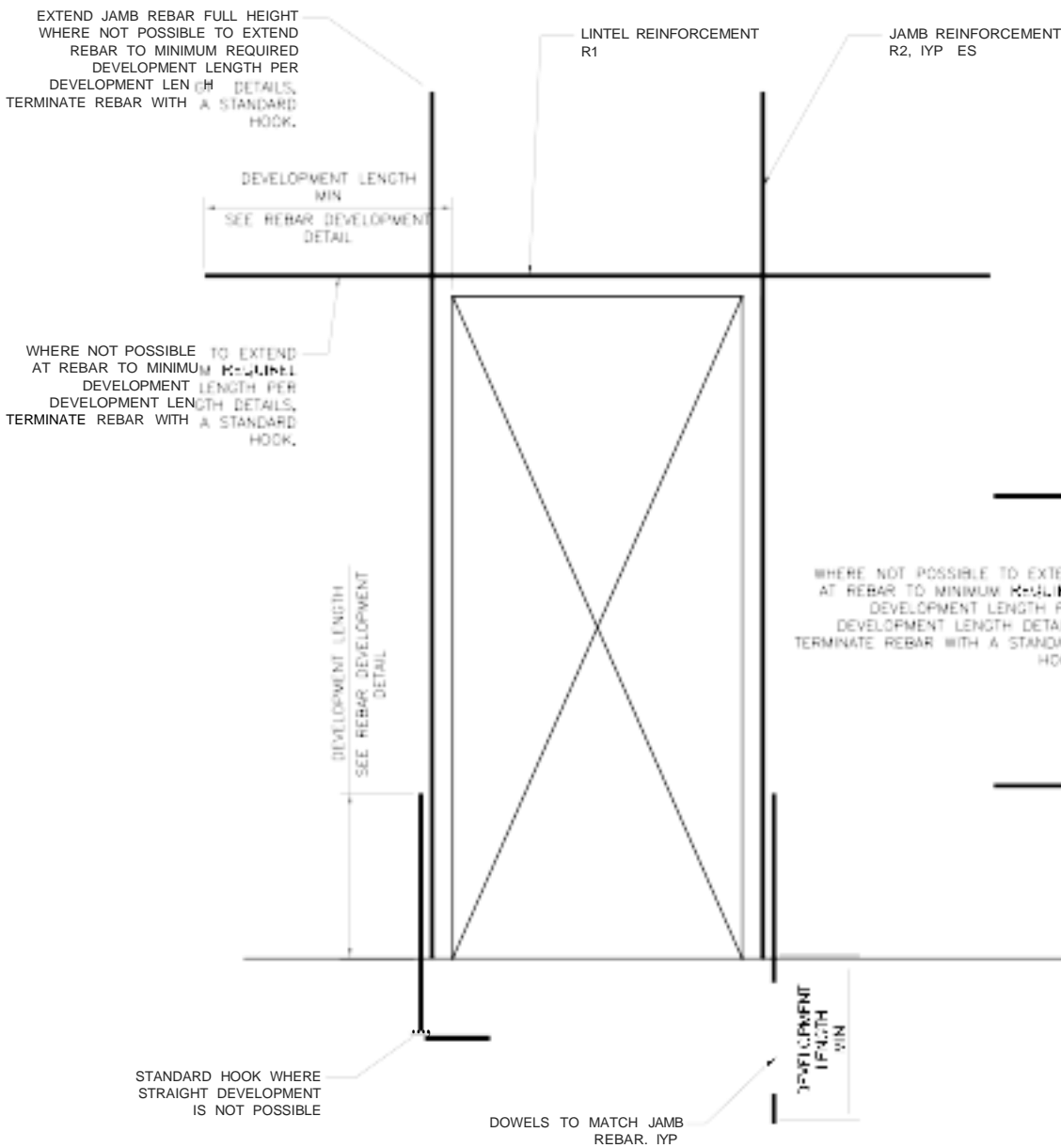
scale 3/4"=1'-0" (3)

DETAIL

scale 3/4"=1'-0" (4)

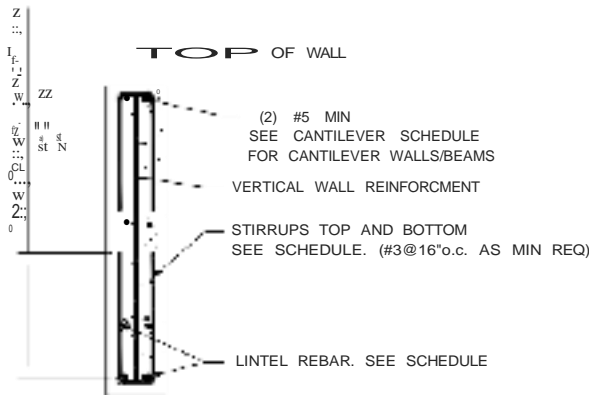
DETAIL

scale 3/4"=1'-0" (5)



CONCRETE OPENING REINFORCEMENT

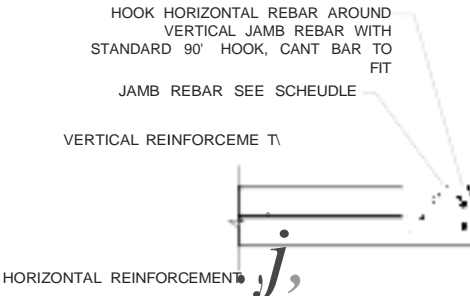
LINTEL	MAXIMUM OPENING CLEAR SPAN	LINTEL REINFORCEMENT R1	JAMB REBAR R2	SILL REBAR R3	STIRRUPS
L1	6'-0"	(3) #5	(2) #5	(2) #5	#3@16"o.c.
L2	7'-0"	(3) #6	(2) #5	(2) #5	#3@16"o.c.
L3	8'-0"	(4) #5	(2) #5	(2) #5	#3@8"o.c.
L4	10'-0"	(4) #6	(2) #5	(2) #5	#3@8"o.c.
L5	15'-0"	(4) #6	(2) #5	(2) #5	#3@8"o.c.



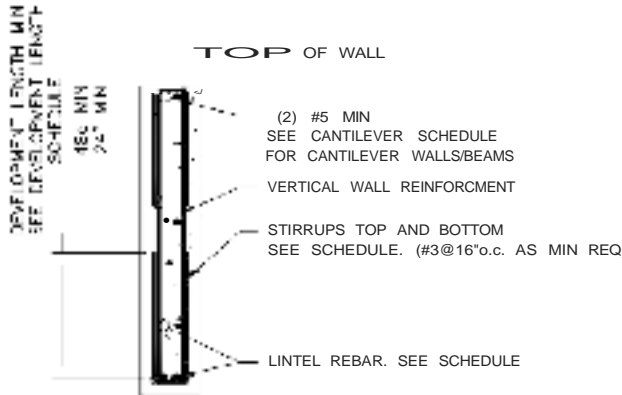
LINTEL SINGLE MAT



SILL SINGLE MAT



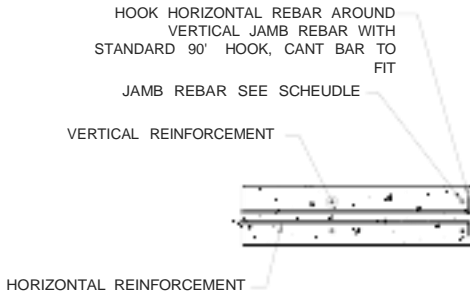
JAMB SINGLE MAT



LINTEL DOUBLE MAT



SILL DOUBLE MAT

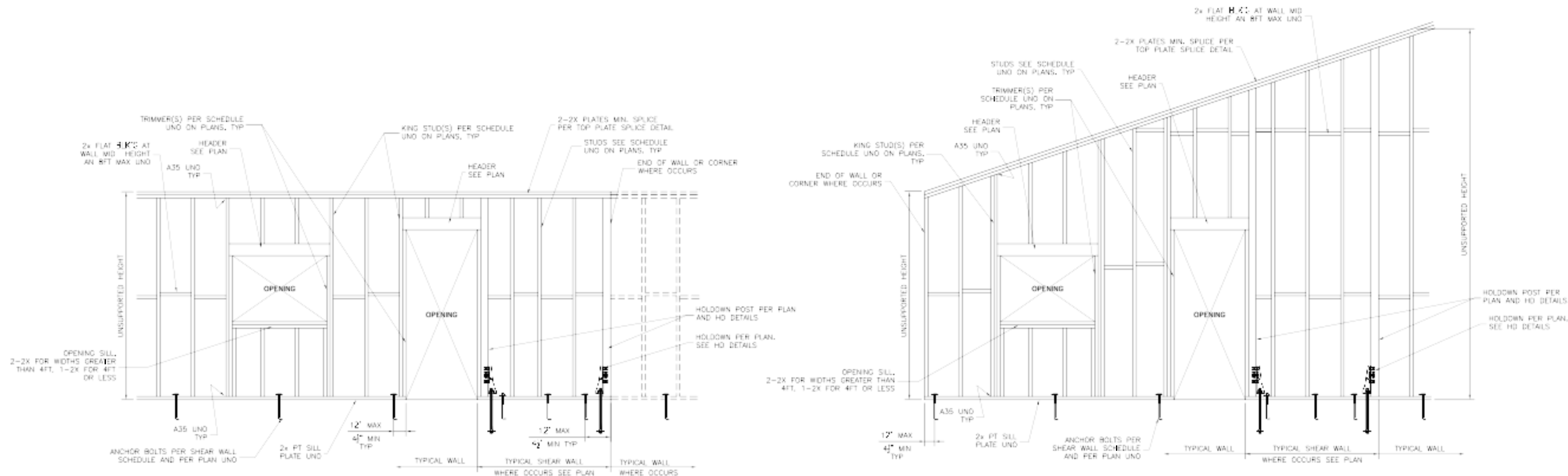


JAMB DOUBLE MAT

DETAIL

scale 3/4"=1'-0" (20)



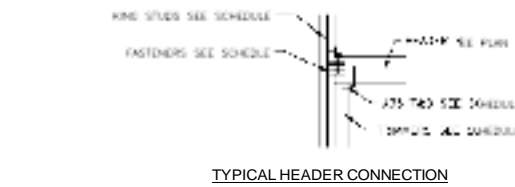


TYPICAL EXTERIOR WALL STUDS												
SUPPORTING	MAX. Laterally UNSUPPORTED HEIGHT											
	8FT			10FT			12FT			14FT	18FT	
	4" WALL	8" WALL	#" WALL	4" WALL	8" WALL	#" WALL	4" WALL	8" WALL	#" WALL	4" WALL	8" WALL	#" WALL
ROOF ONLY OR FLOOR ONLY	2x@15"o.c.	2x@16"o.c.	2x@15"o.c.	2x@15"o.c.	2x@16"o.c.	2x@15"o.c.	2-2x@15"o.c. 3x@15"o.c.	2x@15"o.c.	2x@15"o.c.	4x6FLAT@15"o.c.	3x@12"o.c.	2x@12"o.c. 3x@16"o.c. 2-2x@16"o.c.
1 FLOOR + ROOF	2x@15"o.c.	2x@16"o.c.	2x@15"o.c.	2x@12"o.c.	2x@16"o.c.	2x@15"o.c.	2-2x@15"o.c. 3x@12"o.c.	2x@15"o.c.	2x@15"o.c.	4x6FLAT@15"o.c.	3x@12"o.c.	2x@12"o.c. 3x@16"o.c. 2-2x@16"o.c.
2 FLOOR + ROOF	2x@12"o.c. 3x@15"o.c.	2x@16"o.c.	2x@15"o.c.	2-2x@15"o.c. 3x@12"o.c.	2x@16"o.c.	2x@15"o.c.	2-2x@12"o.c. 4x@12"o.c. 4x6FLAT@15"o.c.	2x@15"o.c.	2x@15"o.c.	4x6FLAT@15"o.c.	3x@12"o.c.	2x@12"o.c. 3x@16"o.c. 2-2x@16"o.c.
3 FLOOR + ROOF	2-2x@15"o.c. 3x@15"o.c.	2x@16"o.c.	2x@15"o.c.	2-2x@12"o.c. 4x@15"o.c.	2x@16"o.c.	2x@15"o.c.	4x6FLAT@15"o.c.	2x@12"o.c. 3x@15"o.c.	2x@15"o.c.	4x6FLAT@15"o.c.	3x@12"o.c. 2-2x@12"o.c. 4x@16"o.c.	3x@16"o.c. 2-2x@16"o.c.
4 FLOOR + ROOF	2-2x@15"o.c. 3x@12"o.c.	2x@16"o.c.	2x@15"o.c.	4x@12"o.c.	2x@16"o.c.	2x@15"o.c.	4x6FLAT@12"o.c. 4x6FLAT@15"o.c.	2x@15"o.c.	2x@15"o.c.	---	4x@12"o.c.	3x@16"o.c. 2-2x@16"o.c.

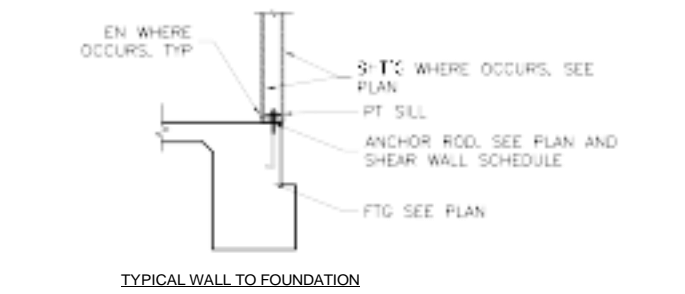
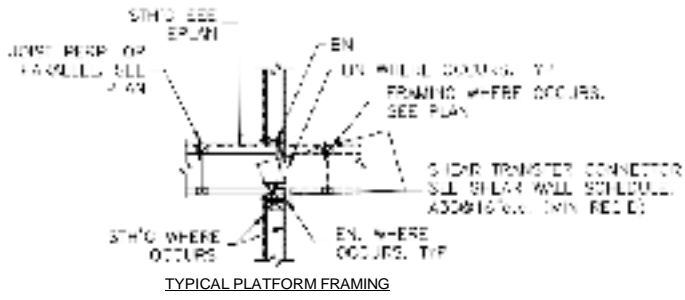
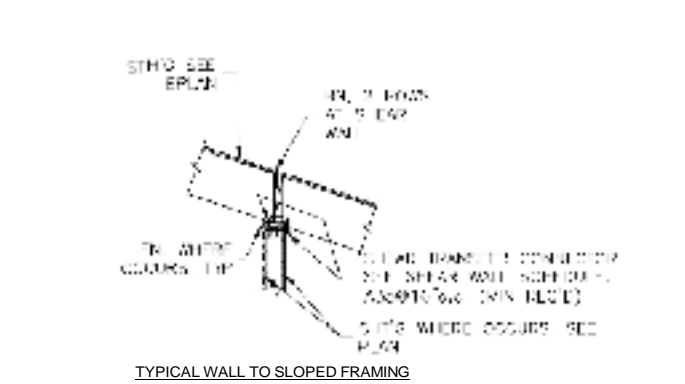
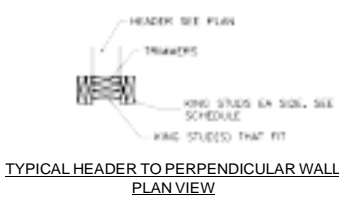
TYPICAL INTERIOR STRUCTURAL WALL STUDS												
SUPPORTING	MAX. Laterally UNSUPPORTED HEIGHT											
	8FT			10FT			12FT			14FT	18FT	
	4" WALL	8" WALL	#" WALL	4" WALL	8" WALL	#" WALL	4" WALL	8" WALL	#" WALL	4" WALL	8" WALL	#" WALL
ROOF ONLY OR FLOOR ONLY	2x@15"o.c.	2x@16"o.c.	2x@15"o.c.	2x@15"o.c.	2x@16"o.c.	2x@15"o.c.	2x@15"o.c.	2x@15"o.c.	2x@15"o.c.	3x@16"o.c. 2-2x@16"o.c.	2x@15"o.c.	2x@16"o.c.
1 FLOOR + ROOF	2x@15"o.c.	2x@16"o.c.	2x@15"o.c.	2x@15"o.c.	2x@16"o.c.	2x@15"o.c.	2x@12"o.c. 3x@15"o.c.	2x@15"o.c.	2x@15"o.c.	3x@16"o.c. 2-2x@16"o.c.	2x@15"o.c.	2x@16"o.c.
2 FLOOR + ROOF	2x@12"o.c. 3x@15"o.c.	2x@16"o.c.	2x@15"o.c.	3x@15"o.c. 2-2x@15"o.c.	2x@16"o.c.	2x@15"o.c.	4x@15"o.c. 3x@12"o.c.	2x@15"o.c.	2x@15"o.c.	4x6FLAT@15"o.c. 4x@12"o.c.	3x@15"o.c.	2x@15"o.c.
3 FLOOR + ROOF	2-2x@15"o.c. 3x@15"o.c.	2x@16"o.c.	2x@15"o.c.	2-2x@12"o.c. 4x@15"o.c.	2x@16"o.c.	2x@15"o.c.	4x6FLAT@15"o.c. 4x@12"o.c.	2x@15"o.c.	2x@15"o.c.	4x6FLAT@15"o.c.	3x@15"o.c.	2x@16"o.c.
4 FLOOR + ROOF	2-2x@15"o.c. 3x@12"o.c.	2x@16"o.c.	2x@15"o.c.	4x@12"o.c.	2x@16"o.c.	2x@15"o.c.	4x6FLAT@15"o.c.	2x@15"o.c.	2x@15"o.c.	---	4x@15"o.c.	3x@16"o.c.

TYPICAL TRIMMERS AND KING STUDS			
MAX. OPENING WIDTH	MIN. TRIMMER	MIN. KING STUD	MIN. CONNECTION TO HEADER
4"-0"	1-2x	1-2x	4-16d
12"-0"	2-2x	2-2x	4-16d + 1-A35
16"-0"	3-2x	3-2x	4-16d + 2-A35
OVER 16"-0"	PER PLAN	PER PLAN	PER PLAN

- NOTES:
1. USE THIS SCHEDULE UNLESS NOTED OTHERWISE ON PLANS.
  2. CONNECTION TO HEADER SHALL BE 16D NAILS AT 4X KING STUDS AND 16D END NAILS AT 2X KING STUDS.
  3. MAXIMUM Laterally UNSUPPORTED HEIGHT = 10 FT.
  4. OUT OF PLANE WIND LOAD = 35 PSF (LRFD).
  5. KING STUDS AND TRIMMER SUPPORTING 3 LEVELS ONLY. SEE PLAN FOR KING STUDS AND TRIMMER SUPPORTING MORE THAN 3 LEVELS.



- NOTES:
1. USE THIS SCHEDULE UNLESS NOTED OTHERWISE ON PLANS.
  2. DESIGN LOADS:
    - a. FLOOR = 850 PLF / FLOOR
    - b. ROOF = 450 PLF
    - c. WIND WAFR (OUT OF PLANE) = 35 PSF (LRFD)
    - d. SEISMIC (OUT OF PLANE) = 3" PSF (LRFD)
    - e. WIND LOAD (OUT OF PLANE) = 40 PSF (LRFD)
  3. DEFLECTION LIMIT L/240



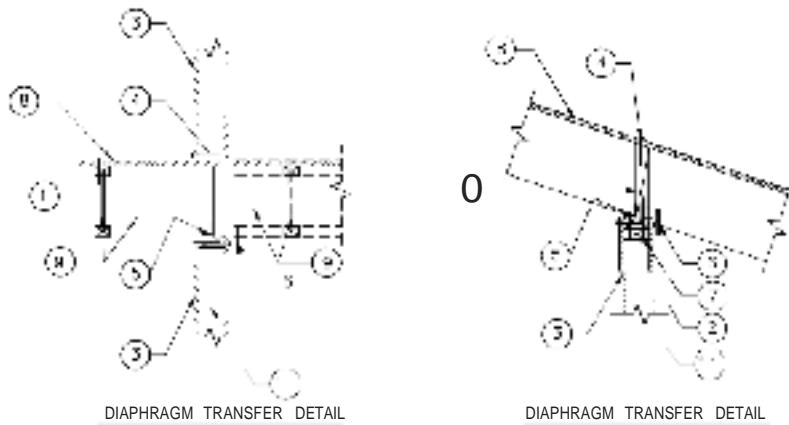
TYPICAL WALL FRAMING UNO ON PLANS

# W1 TYPICAL STRUCTURAL WALL FRAMING









- FRAMING NOTES
1. SHEAR TRANSFER BLK'G OR RIM - SEE SCHEDULE, FRAMING DETAILS AND SHEAR WALL SCHEDULE
  2. SHEAR PANEL ON ONE SIDE
  3. SHEAR PANEL ON SECOND SIDE WHERE OCCURS - SEE PLAN
  4. BOUNDARY NAILING (BN) PROVIDE % MINIMUM EDGE DISTANCE. INTERIOR SHEAR WALLS REQUIRE DOUBLE BOUNDARY NAILING (WALLS WHERE THE DIAPHRAGM EXTENDS PAST EACH SIDE OF THE WALL)
  5. OPTION 1. SHEAR TRANSFER HARDWARE A35 - SEE SCHEDULE
  6. OPTION 2. SHEAR TRANSFER HARDWARE LTP4 - SEE SCHEDULE. MAY BE INSTALLED OVER Y."
  7. OPTION 3. SHEAR TRANSFER FASTENER - SEE SCHEDULE
  8. HORIZONTAL DIAPHRAGM - SEE PLANS
  9. FRAMING PERPENDICULAR OR PARALLEL TO WALL - SEE PLANS
  10. SHEAR WALL ABOVE WHERE OCCURS - SEE PLAN
  11. SHEAR WALL BELOW WHERE OCCURS - SEE PLAN

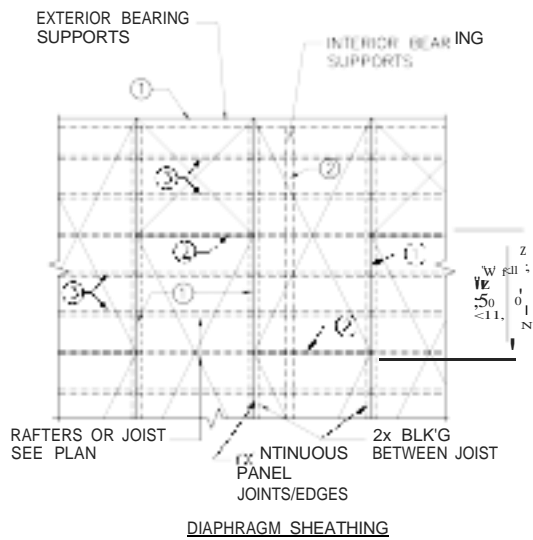
SHEATHING MATERIAL/GRADE	MIN. NOMINAL PANEL THICKNESS (in.)	MIN FASTENER PENETRATION INTO FRAMING MEMBER OR BLOCKING	COMMON WIRE NAIL	MINIMUM NOMINAL WIDTH OF NAILED FACE AT ADJOINING PANEL EDGES AND BOUNDARIES (in.)	FASTENER SPACING (in.) AT BOUNDARIES (ALL CASES) (BN), @ CONTINUOUS PANEL EDGES PARALLEL TO LOAD (CASE 3&4), AND AT ALL PANEL EDGES (CASES 5&6)	FASTENER SPACING (in.) AT ALL OTHER PANEL EDGES (CASES 1, 2, 3, 4, 5) (EN)	FASTENER SPACING ALONG INTERMEDIATE FRAMING MEMBERS AND BLOCKING (FN) (in.)	SHEAR CAPACITY, ASD, SEISMIC (plf)	SHEAR TRANSFER OPTIONS. A35'S OR LTP4'S OR SDS SCREWS		
									SIMPSON SHEAR TRANSFER HARDWARE, 25% INCREASE FOR IRREGULARITIES PER ASCE	LTP4 MAXIMUM SPACING (in.)	SIMPSON SDS 0.25" SCREW MAX. SPACING (in.), 3" MINIMUM EMBEDMENT. 25% INCREASE FOR IRREGULARITIES PER ASCE
WOOD STRUCTURAL PANELS - STRUCTURAL GRADE	1 1/2 AND THICKER		10d	2	6	6	12	320	16	16	16
				2	4	6	12	425	12	12	12
				2	2.5	4	12	640	8	8	8
				2	2	3	12	730	8	8	7
				3	6	6	12	360	16	16	14
				3	4	6	12	480	12	12	10
				3	2.5	4	12	720	8	8	7
WOOD STRUCTURAL PANELS - APA RATED SHEATHING			10d	3	2	6	12	820	8	7	6
				2	6	6	12	290	20	22	18
				2	4	6	12	385	16	16	13
				2	2.5	4	12	575	10	8	9
				2	2	3	12	655	10	8	7
				3	6	6	12	325	20	18	16
				3	4	6	12	430	12	12	12
WOOD STRUCTURAL PANELS - APA RATED SHEATHING	1 1/2 AND THICKER	1 1/2"	10d	3	2.5	4	12	650	8	8	8
				3	2	6	12	735	8	8	7
				2	6	6	12	320	16	16	16
				2	4	6	12	425	12	12	12
				2	2.5	4	12	640	8	8	8
				2	2	3	12	730	8	8	7
				3	6	6	12	360	16	16	14

- Diaphragm Notes
1. Block edges
  2. All joints in sheathing shall occur over and be fastened to common framing members or common blocking.
  3. Panels shall not be less than 4'x8' except at boundaries and changes in framing where minimum panel dimension shall be 24" unless all edges of the undersized panels are supported by and fastened to framing members or blocking.
  4. Nailers shall be located at least 0.375" from the edges of panels. Maximum nail spacing at panels shall be 6" on center.
  5. The width of nailed face of framing members and blocking shall be 2" nominal or greater at adjoining panels edges except that a 3" nominal or greater width at adjoining panel edges and staggered nailing at all panels edges are required where: a. Nail spacing of 2.5" on center for less at adjoining panels edges is specified, or b. 10d common nails having penetration into framing members or blocking of more than 1.5" are specified at 3" on center or less at adjoining panels edges.
  6. Wood structural panels shall conform to the requirements for their type in DOC PS1 or PS2.
  7. See shear wall schedule for other minimum requirements.
  8. At shear wall below, use the more restrictive requirement of diaphragm shear transfer and shear wall below shear transfer
  9. At shear wall above, use the more restrictive requirement of shear wall below shear transfer or diaphragm shear transfer plus shear wall above shear transfer.
  10. Simpson Strong-Tie, Strong-Drive WSNLT Subfloor Screw #8 (2" min length) or Strong-Drive WSV Subfloor Screw #9 may be substituted for 10d nails. Follow the the same requirements per nailed connection. ICC-ES ESR-1472, LA RR25661

## DIAPHRAGM SHEAR TRANSFER SCHEDULE AND DETAILS

	CASES 1&3: CONTINUOUS PANEL JOINTS PERPENDICULAR TO FRAMING	CASES 2&4: CONTINUOUS PANEL JOINTS PARALLEL TO FRAMING	CASES 5&6: CONTINUOUS PANEL JOINTS PERPENDICULAR AND PARALLEL TO FRAMING
LONG PANEL DIRECTION PERPENDICULAR TO SUPPORTS			
LONG PANEL DIRECTION PARALLEL TO SUPPORTS			

- Diaphragm Notes
1. Only cases 1, 2, 3, and 4 shall be used. Do NOT use case 5 or 6



- NOTES:
1. BOUNDARY NAIL (BN) AT EDGES OF DIAPHRAGM AND AT CONTINUOUS PANEL EDGES.
  2. EDGE NAIL (EN) EDGES OF ALL SHEETS. EDGE NAIL AT BEARING SUPPORTS
  3. INTERMEDIATE NAILING (FIELD NAILING, FN) @ 12" o.c.
  4. SEE PLAN FOR SHEATHING TYPE, THICKNESS AND NAILING
  5. LONG DIMENSION OF SHEATHING SHALL RUN PERPENDICULAR TO JOIST OR RAFTERS
  6. MIN. EDGE DISTANCE FOR SHEATHING NAILS SHALL BE %
  7. MINIMUM SHEATHING PANEL SIZE SHALL BE 2'-0"x4'-0"
  8. PROVIDE Jfa" GAP BETWEEN ADJACENT SHEETS OF SHEATHING.
  9. FRAMING AT ADJOINING PANEL EDGES SHALL BE 3" NOMINAL OR WIDER, AND NAILS SHALL BE STAGGERED WHERE NAILS ARE SPACED 2' o.c. OR 2 1/2" o.c.
  10. FRAMING AT ADJOINING PANELS EDGES SHALL BE 3" NOMINAL OR WIDER, AND NAILS SHALL BE STAGGERED WHERE BOTH OF THE FOLLOWING CONDITIONS ARE MET: (a) 10d NAILS HAVING PENETRATION INTO FRAMING OF MORE THAN 1 1/2" AND (b) NAILS ARE SPACED 3' o.c. OR LESS.

## DETAIL

scale 3/4"=1'-0" 5

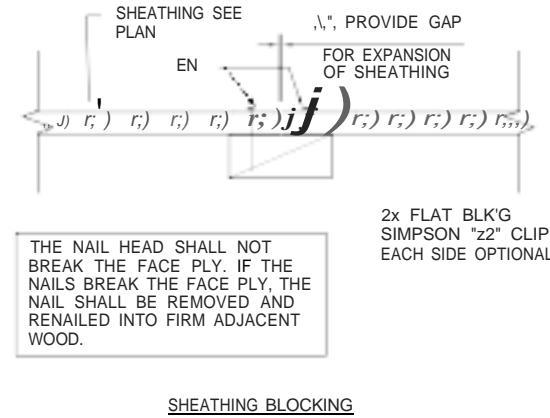
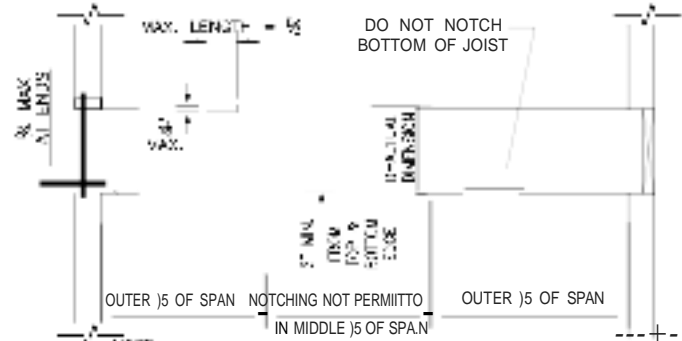


TABLE 1: MAXIMUM SIZES FOR CUTS IN 2x JOISTS

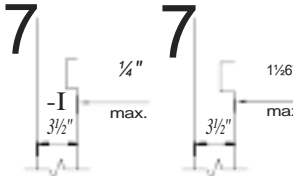
Joist Size	Max. Hole	Max. Notch Depth	Max. End Notch
2x4	none	none	none
2x6	1 1/2"	3/4"	1 1/2"
2x8	2 1/4"	1 1/4"	1 1/4"
2x10	3"	1 1/2"	2 1/4"
2x12	3 3/4"	1 3/4"	2 3/4"

FIG. 1: PLACEMENT OF HOLES IN 2x JOIST



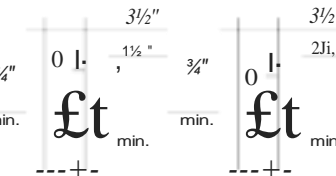
1. HOLES ONLY PERMITTED IN MIDDLE 1/3 OF SPAN
2. MIN CLEAR SPACE BETWEEN HOLES - 4x DIA.

FIG. 2: NOTCHES IN 2x4 STUDS



25% allowed in exterior and bearing walls

FIG. 3: BORED HOLES IN 2x4 STUDS



40% allowed in any non-bearing wall

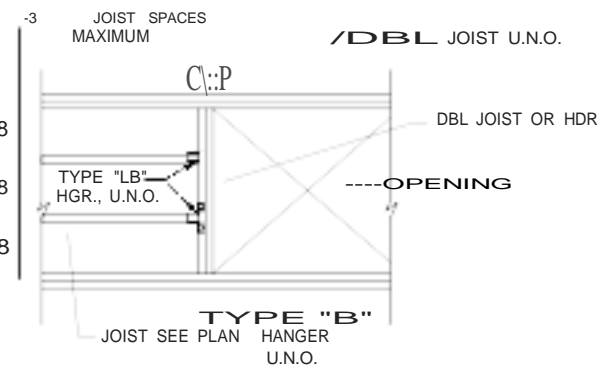
40% allowed in any wall

60% allowed in any non-bearing wall or in bearing walls with not more than two successive studs bored and doubled

FIGURES 2 AND 3 ILLUSTRATE 25%, 40% AND 60% NOTCHES OR HOLES IN 2x4s (e.g. 0.25x3 1/2", - 0.875 OR 1/4"). THESE PERCENTAGES APPLY TO STUDS OF ANY SIZE.

## DETAIL

scale 3/4"=1'-0" 9



scale 3/4"=1'-0" 13

## DETAIL

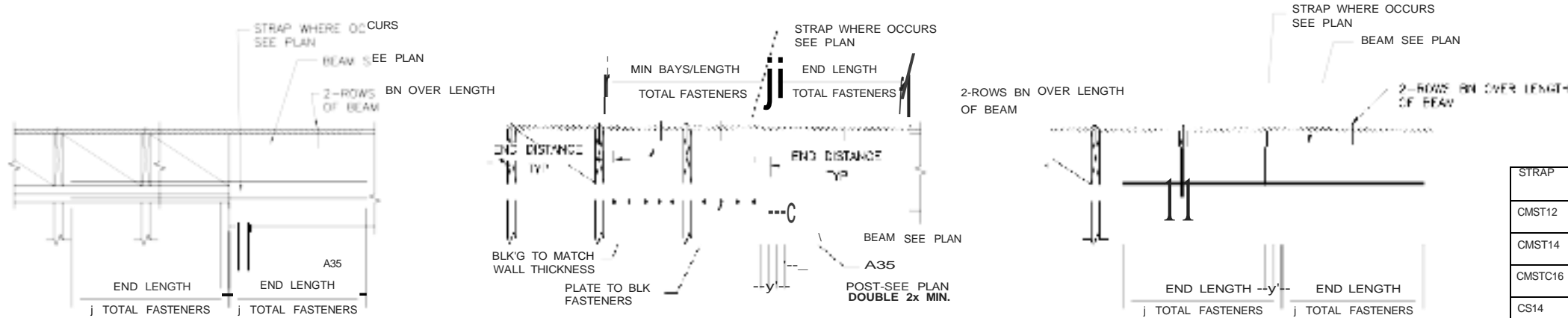
scale 3/4"=1'-0" 14

## DETAIL

scale 3/4"=1'-0" 15



<p>2x STUDS @ 16"o.c.</p> <p>POST SEE PLAN</p> <p>P.T. SILL PLATE 2x MIN</p> <p>LTP4</p> <p>FOUNDATION SEE PLAN</p> <p>4-16d TO PLATE 16d x 2 1/2" FOR 3x PLATE 10d x 1 1/2" FOR SINGLE 2x PLATE OVER CONCRETE</p> <p>POST SEE PLAN</p> <p>BCO POST BASE</p> <p>FOUNDATION SEE PLAN</p>	<p>2x STUDS @ 16"o.c.</p> <p>POST SEE PLAN</p> <p>SILL PLATE 2x MIN</p> <p>LTP4</p> <p>BEAM PARALLEL OR PERPENDICULAR. SEE PLAN</p> <p>4-16d TO PLATE 16d x 2 1/2" FOR 3x PLATE 10d x 1 1/2" FOR SINGLE 2x PLATE OVER CONCRETE</p> <p>POST SEE PLAN</p> <p>BCO POST BASE</p> <p>BEAM PARALLEL OR PERPENDICULAR. SEE PLAN</p>	<p>CS16 COIL STR. EA. PLATE (U.N.O.) 10-1 0d EA. SIDE OF BEAM (20-10d TOTAL EA. STRAP) PLACE STRAP 0-4" OUTSIDE OF SHF.</p> <p>DOUBLE PLATE 2-10d EA. SIDE STUD TO BEAM STUD</p> <p>POST 4x MIN. MATCH BEAM WIDTH</p> <p>10d @ 12"o.c.</p> <p>POST IN WALL DETAIL</p> <p>DETAIL scale 1"=1'-0" 5</p>
<p>2x STUDS @ 16"o.c.</p> <p>POST SEE PLAN</p> <p>P.T. SILL PLATE 2x MIN</p> <p>LTP4</p> <p>FOUNDATION SEE PLAN</p> <p>4-16d TO PLATE 16d x 2 1/2" FOR 3x PLATE 10d x 1 1/2" FOR SINGLE 2x PLATE OVER CONCRETE</p> <p>POST SEE PLAN</p> <p>BCO POST BASE</p> <p>FOUNDATION SEE PLAN</p>	<p>2x STUDS @ 16"o.c.</p> <p>POST SEE PLAN</p> <p>SILL PLATE 2x MIN</p> <p>LTP4</p> <p>BEAM PARALLEL OR PERPENDICULAR. SEE PLAN</p> <p>4-16d TO PLATE 16d x 2 1/2" FOR 3x PLATE 10d x 1 1/2" FOR SINGLE 2x PLATE OVER CONCRETE</p> <p>POST SEE PLAN</p> <p>BCO POST BASE</p> <p>BEAM PARALLEL OR PERPENDICULAR. SEE PLAN</p>	<p>CS16 COIL STR. EA. PLATE (U.N.O.) 10-1 0d EA. SIDE OF BEAM (20-10d TOTAL EA. STRAP) PLACE STRAP 0-4" OUTSIDE OF SHF.</p> <p>DOUBLE PLATE 2-10d EA. SIDE STUD TO BEAM STUD</p> <p>POST 4x MIN. MATCH BEAM WIDTH</p> <p>10d @ 12"o.c.</p> <p>POST IN WALL DETAIL</p> <p>DETAIL scale 1"=1'-0" 10</p>
<p>2x STUDS @ 16"o.c.</p> <p>POST SEE PLAN</p> <p>P.T. SILL PLATE 2x MIN</p> <p>LTP4</p> <p>FOUNDATION SEE PLAN</p> <p>4-16d TO PLATE 16d x 2 1/2" FOR 3x PLATE 10d x 1 1/2" FOR SINGLE 2x PLATE OVER CONCRETE</p> <p>POST SEE PLAN</p> <p>BCO POST BASE</p> <p>FOUNDATION SEE PLAN</p>	<p>2x STUDS @ 16"o.c.</p> <p>POST SEE PLAN</p> <p>SILL PLATE 2x MIN</p> <p>LTP4</p> <p>BEAM PARALLEL OR PERPENDICULAR. SEE PLAN</p> <p>4-16d TO PLATE 16d x 2 1/2" FOR 3x PLATE 10d x 1 1/2" FOR SINGLE 2x PLATE OVER CONCRETE</p> <p>POST SEE PLAN</p> <p>BCO POST BASE</p> <p>BEAM PARALLEL OR PERPENDICULAR. SEE PLAN</p>	<p>CS16 COIL STR. EA. PLATE (U.N.O.) 10-1 0d EA. SIDE OF BEAM (20-10d TOTAL EA. STRAP) PLACE STRAP 0-4" OUTSIDE OF SHF.</p> <p>DOUBLE PLATE 2-10d EA. SIDE STUD TO BEAM STUD</p> <p>POST 4x MIN. MATCH BEAM WIDTH</p> <p>10d @ 12"o.c.</p> <p>POST IN WALL DETAIL</p> <p>DETAIL scale 1"=1'-0" 15</p>



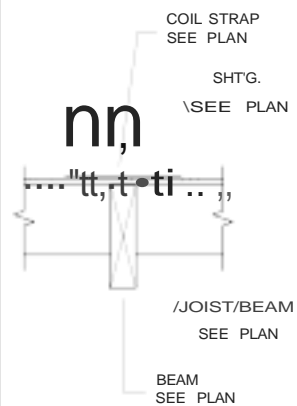
BEAM TO DOUBLE TOP PLATES

BEAM TO BLKG

BEAM TO DOUBLE TOP PLATES

STRAP	END LENGTH MIN	MIN BLKG BAYS/LENGTH	FASTENERS	BLK TO PLATE FASTENERS	WELD LENGTH E.S.	ALLOWABLE TENSION (160)
CMST12	33"	3 -BAYS	74-16d	17-SDS"x8" OR 15-I"x8" LAG	7"	9215
CMST14	26"	3 -BAYS	56-16d	12-SDS"x8" OR 11-I"x8" LAG	6"	6490
CMSTC16	20"	2 -BAYS	50-16d SINKER	9-SDS"x8" OR 8-I"x8" LAG	4"	4586
CS14	15"	2 -BAYS	25-10d	6-SDS"x8" OR 4-I"x8" LAG	3"	2490
CS16	11"	2 -BAYS	20-10d	5-SDS"x8" OR 3-I"x8" LAG	3"	1705
CS18	9"	1 -BAY	16-10d	3-SDS"x8" OR 3-I"x8" LAG	3"	1370
CS20	7"	1 -BAY	12-10d	3-SDS"x8" OR 2-I"x8" LAG	3"	1030
CS22	7"	1 -BAY	10-10d	3-SDS"x8" OR 2-I"x8" LAG	3"	845

- NOTES
- USE 1/2 OF THE REQUIRED NAILS IN EACH MEMBER BEING CONNECTED
  - NAIL: 16d=0.162" x", 16d Sinker = 0.148"x3"; LONG, 10d=0.148" x3" LONG, 8d 0.131"x2" LONG
  - INSTALL BLK TO PLATE FASTENERS IN 2 ROWS, OFFSET 1/4" BETWEEN ROWS, STAGGER 1/4" LONG
  - STRAP LENGTH ON BLKG TO BE THE LONGER OF END LENGTH OR MIN BAY LENGTH
  - FOR MULTIPLE STRAPS, MULTIPLY 'MIN BLKG BAY/LENGTH' AND BLKG TO PLATE FASTENERS' BY THE NUMBER OF STRAPS.
  - STRAPS WITH 8d NAILS SHALL BE INSTALLED BENEATH SHEATHING
  - STRAP WELD SIZE TO MATCH STRAP THICKNESS.



SIMPSON COIL STRAP	FASTENERS	lb	CAPACITY (ASD, 1.6)
CMST12	74-16d	33"	9,215#
CMST14	56-16d	26"	6,490#
CMSTC16	50-16d SINKERS	20"	4,586#
CS14	25-10d	15"	2,490#
CS16	20-10d	11"	1,705#
CS18	16-10d	9"	1,370#
CS20	12-10d	7"	1,030#
CS22	10-10d	7"	845#

- NOTES:
- USE 1/2 OF THE REQUIRED FASTENERS IN EACH MEMBER BEING CONNECTED
  - USE MIN 4x JOIST/BEAM WITH 3" WIDE STRAPS
  - STRAPS WITH 8d NAILS SHALL BE INSTALLED BENEATH SHEATHING

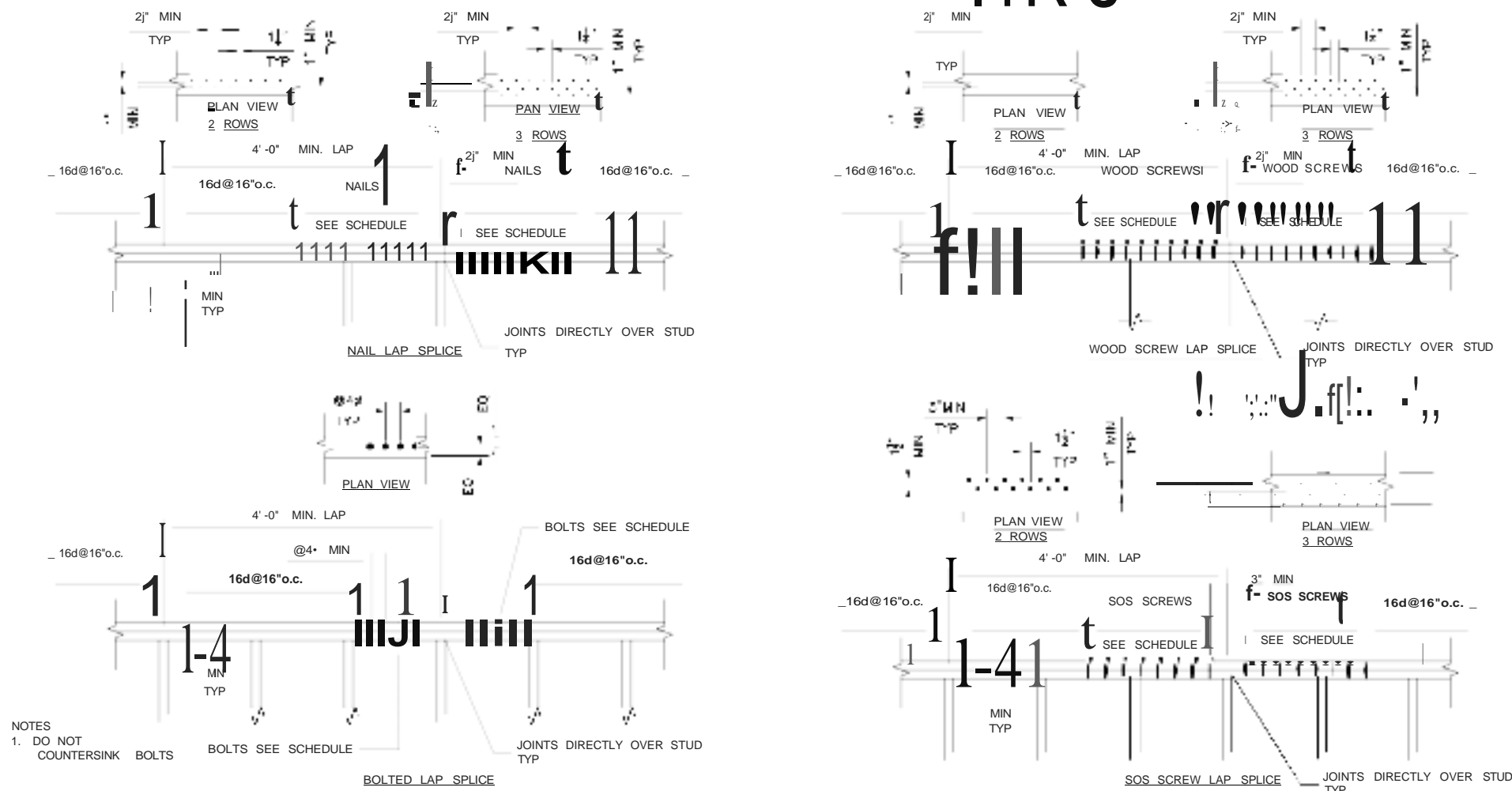
DRAG DETAIL

DETAIL

scale 3/4"=1'-0" 9

DETAIL

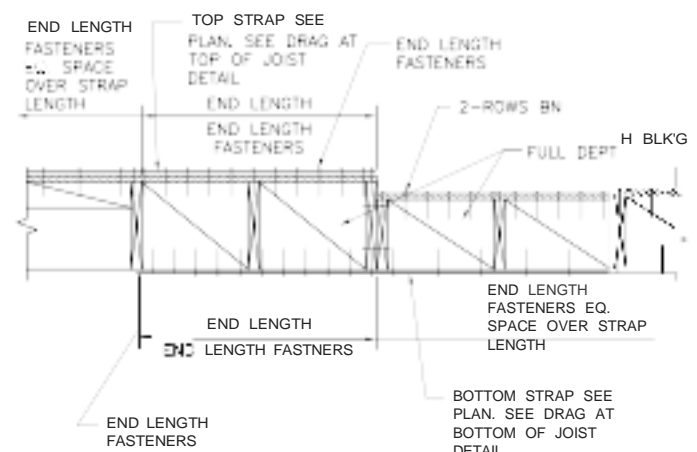
scale 3/4"=1'-0" 10



PLATES	NAILS	SPICE CONNECTION OPTIONS	WOOD SCREWS	BOLTS	SIMPSON SOS
2-2X4	(20) 16d E.S.	(18) #14x3" E.S.	(5) 7d E.S.	(10) SOS 7"x3" E.S.	
2-2X6	(26) 16d E.S.	(24) #14x3" E.S.	(6) 7d E.S.	(13) SOS 7"x3" E.S.	
2-2X8	(33) 16d E.S.	(30) #14x3" E.S.	(8) 7d E.S.	(16) SOS 7"x3" E.S.	

- NOTE:
- 16d @ 16" o.c. BETWEEN SPLICE
  - DO NOT COUNTERSINK BOLTS
  - SIMPSON SOS STRONG-DRIVE SCREW, ICC-ES ESR-2236, LA RR25711, FL2589

TOP PLATES/CORDS/DRAGS/COLLECTOR SPLICE DETAIL



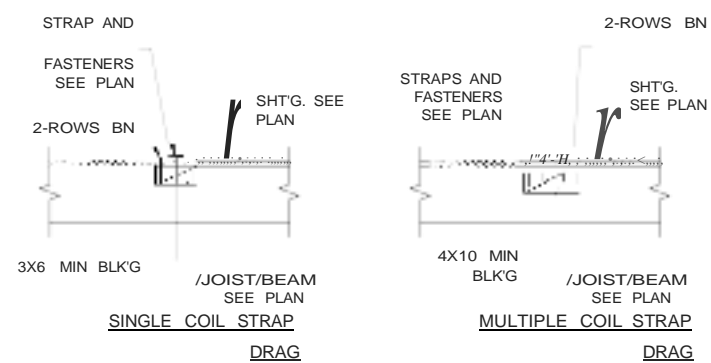
DRAG TOP/BOTTOM TRANSITION

STRAP	END LENGTH MIN	END LENGTH FASTENERS	ALLOWABLE TENSION (160)
CMST12	33"	37-16d	9215
CMST14	26"	28-16d	6490
CMSTC16	20"	25-16d SINKER	4586
CS14	15"	13-10d	2490
CS16	11"	20-10d	1705
CS18	9"	16-10d	1370
CS20	7"	12-10d	1030
CS22	7"	10-10d	845

- NOTES
- END LENGTH TOP AND BOTTOM SHALL BE THE LONGER OF THE LARGER STRAP
  - NAIL: 16d 0.162"x3", 16d Sinker 0.148"x3" LONG, 10d 0.148"x3" LONG.
  - BLKG WITH NAILS FROM TOP AND BOTTOM STRAPS SHALL BE 4x MIN

DETAIL

scale 3/4"=1'-0" 15



DRAG DETAIL

DETAIL

scale 3/4"=1'-0" 18

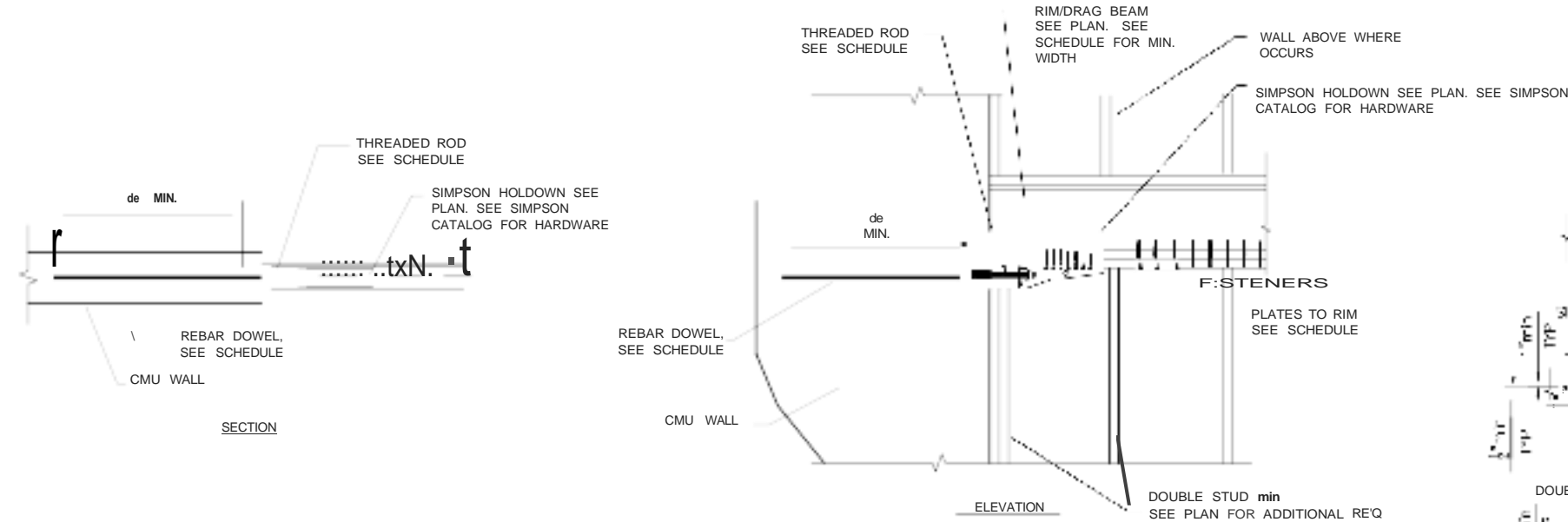
DETAIL

scale 3/4"=1'-0" 19

DETAIL

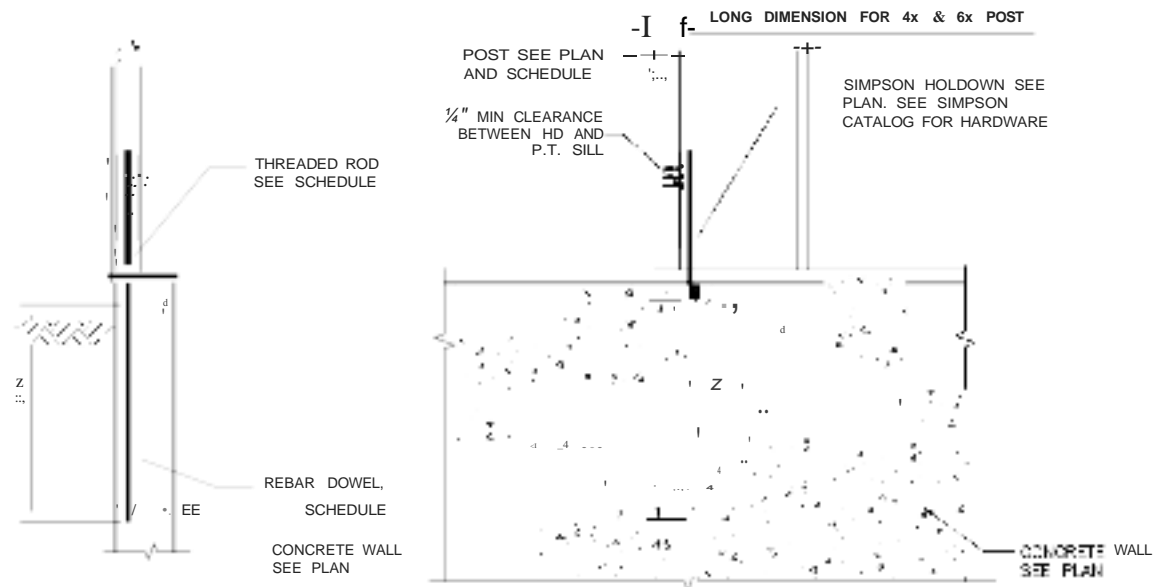
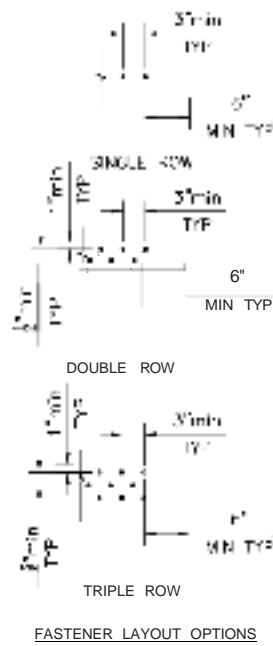
scale 3/4"=1'-0" 20





SIMPSON HOLDOWN	THREADED ROD*	THREAD DATA	REBAR DOWEL	THREAD ENGAGEMENT	de (MIN)	MIN WALL/DRAW/ RIM, PLATE WIDTH U.N.O.	MIN FASTENERS PLATES TO DRAG	ICC-ESR	IAPMO	LARR
DTT2Z-SDS2.5	1/2"	1" - 13 UNC	#4 D51A DBR	1"	18"	-x4	6-SDS 1"x8" w.s.	ESR-2330 ESR-2523		RR25720
HDU2-SDS2.5	3/8"	1" - 11 UNC	#5 D51A DBR	1"	24"	-x4	6-SDS 1"x8" w.s.	ESR-2330 ESR-2523		RR25720
HDU4-SDS2.5	3/8"	1" - 11 UNC	#5 D51A DBR	1"	24"	-x4	10-SDS 1"x8" w.s.	ESR-2330 ESR-2523		RR25720
HDU5-SDS2.5	3/8"	1" - 11 UNC	#5 D51A DBR	1"	24"	-x4	12-SDS 1"x8" w.s.	ESR-2330 ESR-2523		RR25720
HDU8-SDS2.5	1/2"	1" - 9 UNC	#7 D51A DBR	1 1/2"	45"	-x4	16-SDS 1"x8" w.s.	ESR-2330 ESR-2523		RR25720
HDU11-SDS2.5	1"	1" - 8 UNC	#8 D51A DBR	1 1/2"	57"	-x4	22-SDS 1"x8" w.s.	ESR-2330 ESR-2523		RR25720
HDU14-SDS2.5	1"	1" - 8 UNC	#8 D51A DBR	1 1/2"	57"	-x6	28-SDS 1"x8" w.s.	ESR-2330 ESR-2523		RR25720
HD19	1 1/4"	1 1/2" - 8 UN	#10 D51A DBR	1 1/2"	85"	-x6	36-SDS 1 1/4"x8" w.s.		ER-143	RR25828

- NOTES:
1. THREADED ROD SHALL TO BE ASTM A36
  2. REBAR DOWEL TO BE DBR MECHANICAL SPLICE SYSTEM BY DAYTON SUPERIOR CORPORATION, ICC AC 133, TYPE 1
  3. REMOVE ANY DEBRIS IN THE THREADED HOLE INCLUDING THREAD PROTECTION CAP BEFORE INSTALLING THREADED ROD
  4. INSTALL THREADED ROD UNTIL FULLY SEATED, HAND TIGHT (5FT-LBS)
  5. SMOOTH PORTION OF DOWEL HEAD SHALL NOT BE PART OF THE MINIMUM DEVELOPMENT LENGTH (do)
  6.  $f'c = 2500$  psi MIN.
  7. HDU14 REQUIRES HEAVY HEX ANCHOR NUT @ HD SEAT
  8. CMU WALL REINFORCEMENT NOT SHOWN FOR CLARITY
  9. SEE PLAN, POST IN WALL DETAILS AND POST TO BEAM DETAILS FOR ADDITIONAL POST SIZE REQUIREMENTS.
  10. HD19, BOLT THRU PLATES AND DRAG BEAM



SIMPSON HOLDOWN	THREADED ROD*	THREAD DATA	REBAR DOWEL	THREAD ENGAGEMENT	de (MIN)	MIN POST U.N.O.	ICC-ESR	IAPMO	LARR
DTT2Z-SDS2.5	1/2"	1" - 13 UNC	#4 D51A DBR	1"	18"	2-2x W/ 1D-10d	ESR-2330 ESR-2523		RR25720
HDU2-SDS2.5	3/8"	1" - 11 UNC	#5 D51A DBR	1"	24"	2-2x W/ 1D-10d	ESR-2330 ESR-2523		RR25720
HDU4-SDS2.5	3/8"	1" - 11 UNC	#5 D51A DBR	1"	24"	2-2x W/ 14-10d	ESR-2330 ESR-2523		RR25720
HDU5-SDS2.5	3/8"	1" - 11 UNC	#5 D51A DBR	1"	24"	2-2x W/ 16-10d	ESR-2330 ESR-2523		RR25720
HDU8-SDS2.5	1/2"	1" - 9 UNC	#7 D51A DBR	1 1/2"	45"	4x6	ESR-2330 ESR-2523		RR25720
HDU11-SDS2.5	1"	1" - 8 UNC	#8 D51A DBR	1 1/2"	57"	4x8	ESR-2330 ESR-2523		RR25720
HDU14-SDS2.5	1"	1" - 8 UNC	#8 D51A DBR	1 1/2"	57"	6x6	ESR-2330 ESR-2523		RR25720
HD19	1 1/4"	1 1/2" - 8 UN	#10 D51A DBR	1 1/2"	85"	6x8		ER-143	RR25828

- NOTES:
1. THREADED ROD SHALL TO BE ASTM A36
  2. REBAR DOWEL TO BE DBR MECHANICAL SPLICE SYSTEM BY DAYTON SUPERIOR CORPORATION, ICC AC 133, TYPE 1
  3. REMOVE ANY DEBRIS IN THE THREADED HOLE INCLUDING THREAD PROTECTION CAP BEFORE INSTALLING THREADED ROD
  4. INSTALL THREADED ROD UNTIL FULLY SEATED, HAND TIGHT (5FT-LBS)
  5. SMOOTH PORTION OF DOWEL HEAD SHALL NOT BE WITHIN THE MINIMUM DEVELOPMENT LENGTH (d)
  6.  $f'c = 2500$  psi MIN. SEE CONCRETE NOTES
  7. HDU14 REQUIRES HEAVY HEX ANCHOR NUT @ HD SEAT
  8. REINFORCEMENT NOT SHOWN FOR CLARITY
  9. SEE PLAN, POST IN WALL DETAILS AND POST TO BEAM DETAILS FOR ADDITIONAL POST SIZE REQUIREMENTS.

DETAIL

scale 3/4"=1'-0"

8

DETAIL

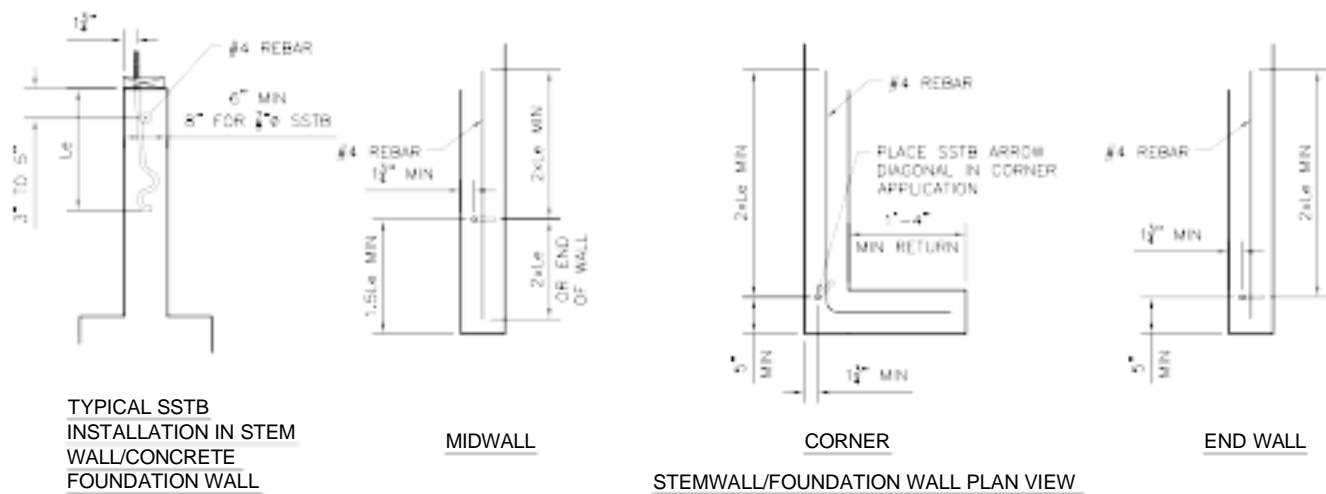
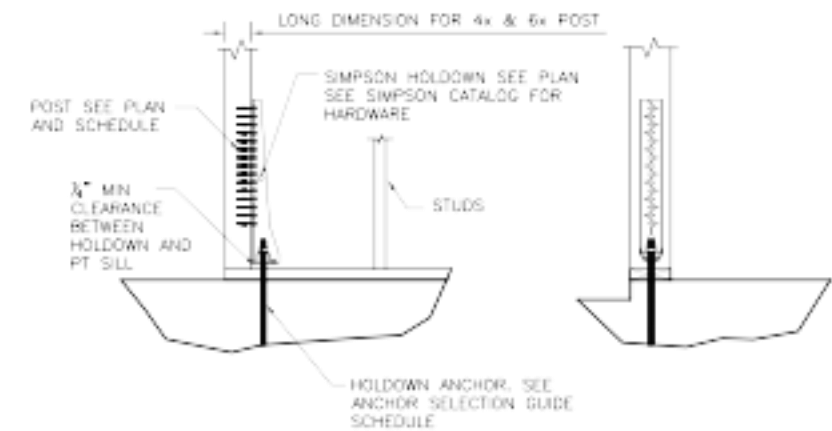
scale 3/4"=1'-0"

10

SIMPSON HOLDOWN	FASTENER	MIN POST U.N.D.	CAPACITY ASD, 1.6, KIPS	ICC-ESR	IAPMO	LARR	FLORIDA
DTT1Z	8-10x14"	2x	0.910	ESR-2330		ESR-2330	FL11496
DTT2Z	8-SOS 1/2"x20"	2-2x w/ 10-10d	2.145	ESR-2330		ESR-2330	FL10441
HOU2	6-SOS 1/2"x20"	2-2x w/ 10-10d	3.075	ESR-2330		ESR-2330	FL10441
HOU4	10-SOS 1/2"x20"	2-2x w/ 14-10d	4.565	ESR-2330		ESR-2330	FL10441
HOU5	14-SOS 1/2"x20"	2-2x w/ 16-10d	5.645	ESR-2330		ESR-2330	FL10441
HOU8	20-SOS 1/2"x20"	4x6	7.870	ESR-2330		ESR-2330	FL10441
HOU11	30-SOS 1/2"x20"	4x8	11.175	ESR-2330		ESR-2330	FL10441
HOU14	36-SOS 1/2"x20"	6x8	14.445	ESR-2330		ESR-2330	FL10441
HHDQ14	30-SOS 1/2"x20"	6x6	13.710	ESR-2330		ESR-2330	FL10441
HD19	5-1"Ø W.B.	6x8	19.300		ER-143	ER-143	FL11496

**NOTES:**

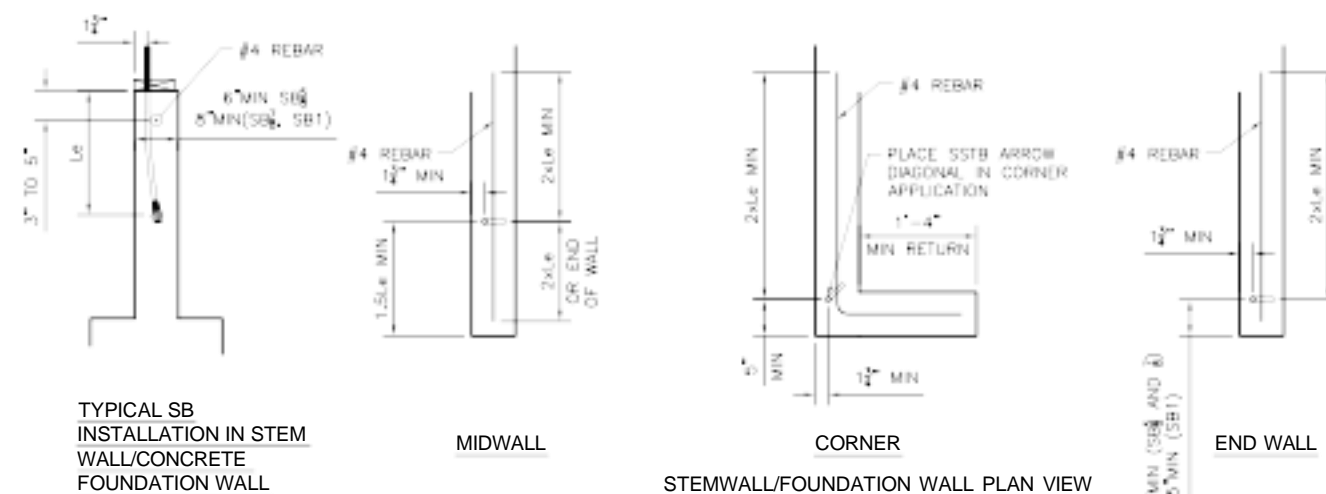
1. HOU14 & HHDQ14 REQUIRES HEAVY HEX ANCHOR NUT @ HD SEAT
2. SEE PLAN, POST IN WALL DETAILS AND POST TO BEAM DETAILS FOR ADDITIONAL POST SIZE REQUIREMENTS.



SSTB BOLTS AT STEM WALL

**ANCHOR DETAIL A**

- NOTES:**
1. USE DETAIL C FOR WALLS LESS THAN 6" THICK
  2. USE DETAIL C FOR WALLS LESS THAN 8" THICK FOR 1/2" DIAMETER ANCHOR
  3. USE DETAIL C WHERE MIDWALL, CORNER AND END WALL CONDITIONS DO NOT MEET MINIMUM REQUIREMENTS ABOVE



SB BOLTS AT STEM WALL

**ANCHOR DETAIL B**

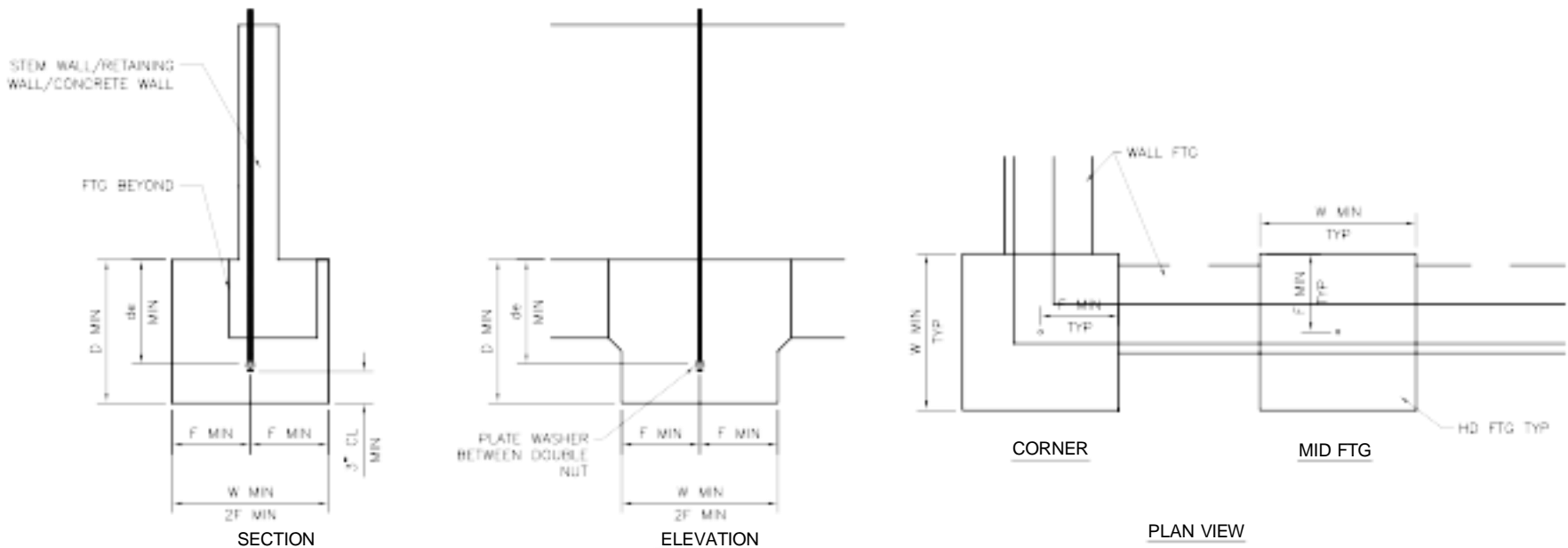
- NOTES:**
1. USE DETAIL C FOR WALLS LESS THAN 6" THICK
  2. USE DETAIL C FOR WALLS LESS THAN 8" THICK FOR 1/2" DIA. AND 1" DIA. ANCHOR
  3. USE DETAIL C WHERE MIDWALL, CORNER AND END WALL CONDITIONS DO NOT MEET MINIMUM REQUIREMENTS ABOVE

**ANCHOR SELECTION GUIDE**

SIMPSON HOLDOWN	STEM WALL/FOUNDATION WALL/WALLS			
	MIDWALL/CORNER		END WALL	
	ANCHOR	DETAIL	ANCHOR	DETAIL
DTT1Z	1/2"Ø THREADED ROD	C	1/2"Ø THREADED ROD	C
DTT2Z	3/8"Ø THREADED ROD	C	3/8"Ø THREADED ROD	C
HOU2	SSTB24	A	SSTB24	B
	SB5/8X24	B	1/2"Ø THREADED ROD	C
	1/2"Ø THREADED ROD	C		
HOU4	SB5/8X24	B	SB5/8X24	B
	1/2"Ø THREADED ROD	C	1/2"Ø THREADED ROD	C
HOU5	SB5/8X24	B	SB5/8X24	B
	1/2"Ø THREADED ROD	C	1/2"Ø THREADED ROD	C
HOU8	1/2"Ø THREADED ROD	C	1/2"Ø THREADED ROD	C
HOU11	1"Ø THREADED ROD	C	1"Ø THREADED ROD	C
HOU14	1"Ø THREADED ROD	C	1"Ø THREADED ROD	C
HHDQ14	1"Ø THREADED ROD	C	1"Ø THREADED ROD	C
HD19	1.25"Ø THREADED ROD	C	1.25"Ø THREADED ROD	C

**NOTES:**

1. SIMPSON SSTB ANCHORS ESR-2611 LARC AND LARC SUPPLEMENT, FL13628
2. SIMPSON SB ANCHORS ESR-2611 LARC AND LARC SUPPLEMENT, FL13628
3. THREADED ROD DETAIL DESIGN FOR OVERSTRENGTH = 2.5
4. SIMPSON PAR (PRE-ASSEMBLED ANCHOR BOLT) MAY BE SUBSTITUTED FOR THREADED ROD. ALL EDGE DISTANCE AND EMBEDMENT LENGTHS FOR THE THREADED ROD DETAIL APPLY TO THE PAR ANCHOR.
5. USE SSTB IN PLACE OF SSTB AS REQUIRED FOR LOCATIONS WHERE LONGER THREAD LENGTH IS REQUIRED.



**THREADED ROD ANCHOR FOOTING SCHEDULE**

SIMPSON HOLDOWN	THREADED ROD	PLATE WASHER	de MIN	D MIN	F MIN	W MIN
DTT1Z	1/2"Ø	8"x1.5"x1.5"	7"	12"	10"	20"
DTT2Z	3/8"Ø	8"x1.5"x1.5"	7"	12"	10"	20"
HOU2	5/8"Ø	1"x1.75"x1.75"	9"	15"	14"	28"
HOU4	5/8"Ø	1"x1.75"x1.75"	10"	16"	14"	28"
HOU5	5/8"Ø	1"x1.75"x1.75"	11"	17"	16"	32"
HOU8	5/8"Ø	1"x2.5"x2.5"	14"	20"	20"	40"
HOU11	1"Ø	2"x3.0"x3.0"	17"	23"	26"	50"
HOU14	1"Ø	2"x3.0"x3.0"	20"	26"	29"	58"
HHDQ14	1"Ø	2"x3.0"x3.0"	20"	26"	29"	58"
HD19	1 1/8"Ø	2"x3.5"x3.5"	23"	29"	34"	68"

**THREADED ROD ANCHOR DETAIL**

**ANCHOR DETAIL C**

**NOTES:**

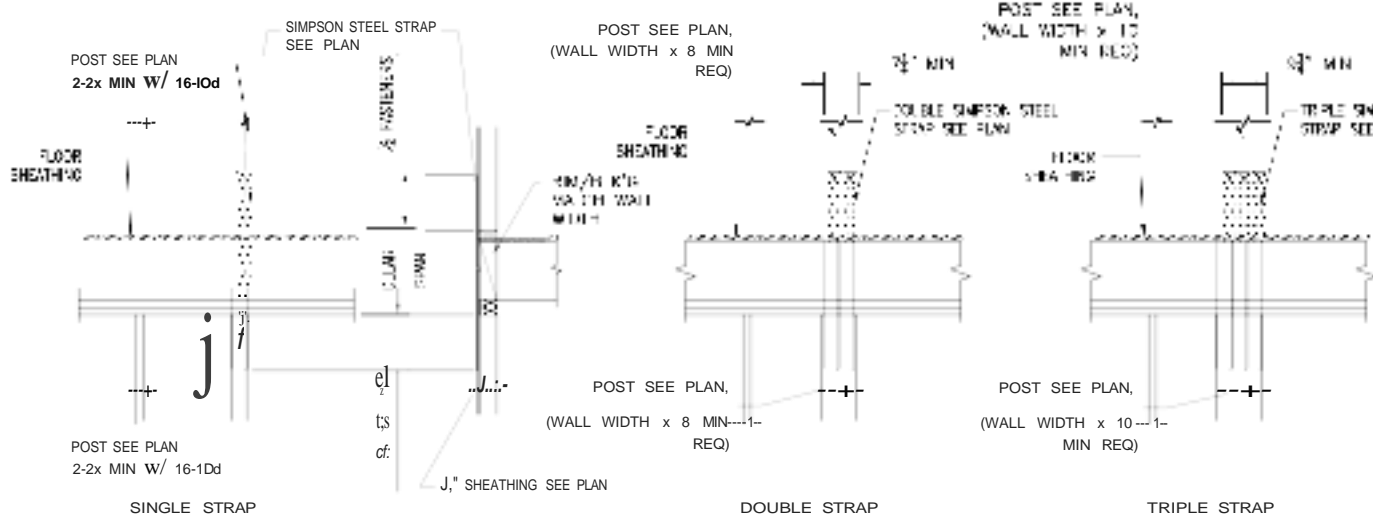
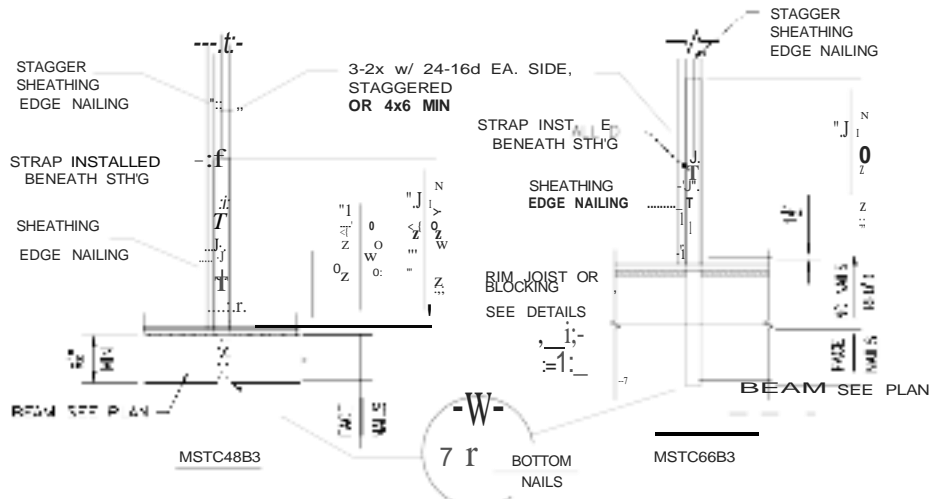
1. ANCHORS SHALL BE F1554 GR. 105 (F<sub>u</sub>=125KSI) OR A193 Gr. B7 (F<sub>u</sub>=125ksi) OR ASTM A449 (F<sub>u</sub>=120KSI)
2. HOU14 & HHDQ14 REQUIRES HEAVY HEX ANCHOR NUT @ HD SEAT
3. de IS MEASURED TO TOP OF PLATE WASHER
4. DESIGN BASED ON f'<sub>c</sub> = 2500psi min. SEE CONCRETE NOTES ON S1 FOR ADDITIONAL STRENGTH REQUIREMENTS.
5. ANCHORS DESIGNED FOR CRACKED CONCRETE AND OVERSTRENGTH = 2.5
6. FOUNDATION DIMENSIONS ARE FOR ANCHORAGE ONLY. SEE PLAN FOR ADDITIONAL FOUNDATION REQUIREMENTS, SIZE AND REINFORCEMENT.
7. SEE PLAN, POST IN WALL DETAILS AND POST TO BEAM DETAILS FOR ADDITIONAL POST SIZE REQUIREMENTS.
8. PLATE WASHER SHALL BE ASTM A36 OR ASTM A572 Gr. 50

**NOTES:**

1. SEE PLAN AND FOUNDATION DETAILS FOR ADDITIONAL FOUNDATION REQUIREMENTS, SIZES, REINFORCEMENT, ETC.
2. SEE PLAN AND OTHER DETAILS FOR ADDITIONAL WALL REQUIREMENTS, WIDTHS, REINFORCEMENT, ETC.

HD-1 WALL HOLDOWN AT STEM WALL/WALL



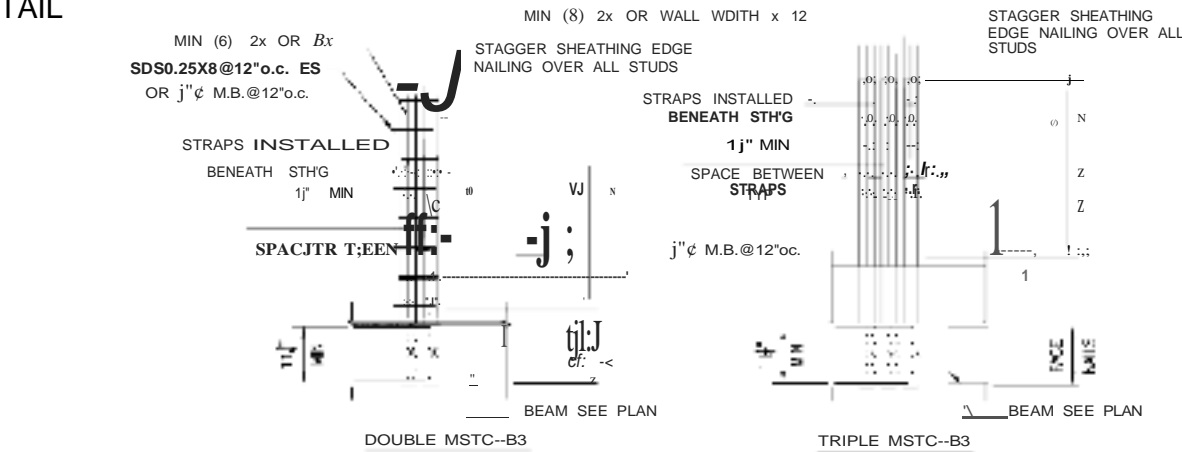


STRAP	MAX CLEAR SPAN	FASTENERS PER STRAP	ALLOWABLE TENSION (10d)	ICC-ER	IAPMO	LA RR
MSTA49	18"	26-10d	2020	ESR-2105	ER-124	RR25713
MSTC28	18"	12-16d SINKERS	1155	ESR-2105	ER-124	RR25713
MSTC40	18"	28-16d SINKERS	2695	ESR-2105	ER-124	RR25713
MSTC52	18"	36-16d SINKERS	3465	ESR-2105	ER-124	RR25713
MSTC52	18"	44-16d SINKERS	4235	ESR-2105	ER-124	RR25713
MSTC66	18"	48-16d SINKERS	4620	ESR-2105	ER-124	RR25713
MSTC66	18"	64-16d SINKERS	5860	ESR-2105	ER-124	RR25713
MSTC66	18"	68-16d SINKERS	5860	ESR-2105	ER-124	RR25713
MSTC78	18"	76-16d SINKERS	5860	ESR-2105	ER-124	RR25713
MSTC78	18"	76-16d SINKERS	5860	ESR-2105	ER-124	RR25713
MST37	18"	20-16d	2465	ESR-2105	ER-124	RR25713
MST37	18"	22-16d	2710	ESR-2105	ER-124	RR25713
MST48	18"	32-16d	3695	ESR-2105	ER-124	RR25713
MST48	18"	34-16d	3695	ESR-2105	ER-124	RR25713
MST60	18"	46-16d	4830	ESR-2105	ER-124	RR25713
MST60	18"	48-16d	4830	ESR-2105	ER-124	RR25713
MST72	18"	46-16d	4830	ESR-2105	ER-124	RR25713
MST72	18"	48-16d	4830	ESR-2105	ER-124	RR25713

- NOTES
- 10d to be 3' LONG
  - SEE PLAN, POST IN WALL DETAILS AND POST TO BEAM DETAILS FOR ADDITIONAL POST SIZE REQUIREMENTS.
  - CAPACITY OF MULTIPLE STRAPS, MULTIPLY TABLE CAPACITY BY NUMBER OF STRAPS

## DETAIL

scale 3/4"=1'-0" 5



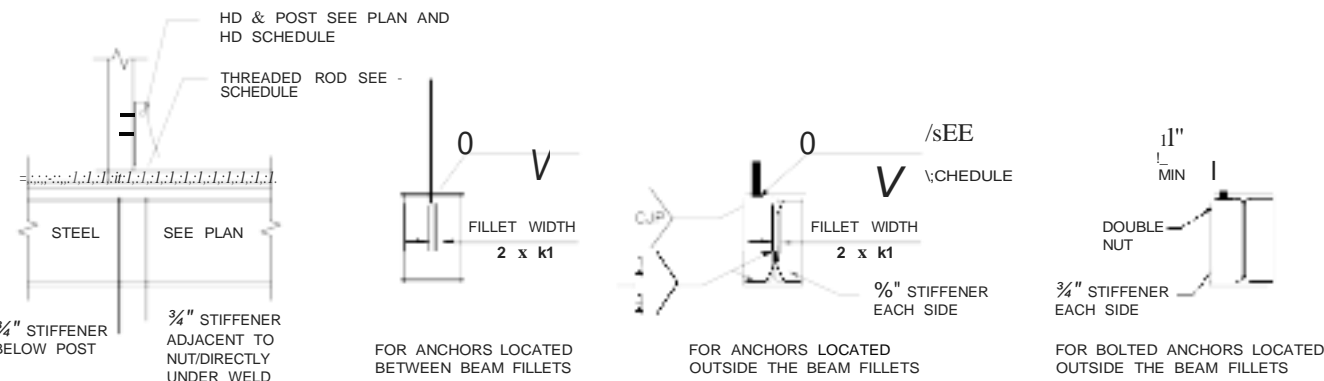
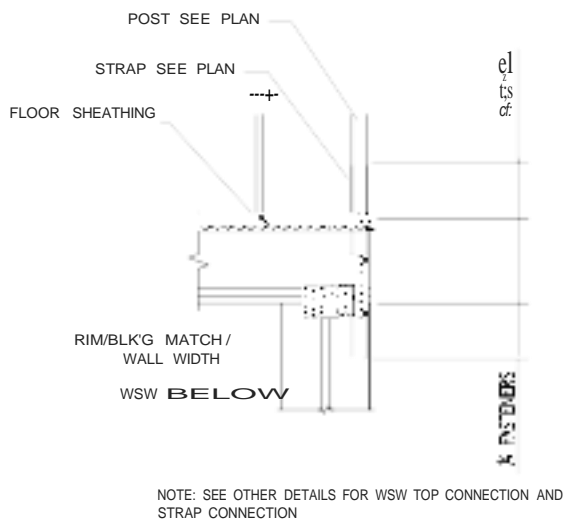
MODEL NO.	FACE	BOTTOM	POST	SINGLE	DOUBLE	TRIPLE
MSTC48B3	12-10d	4-10d	38-10d	3,975 KIPS	7,353 KIPS	10,136 KIPS
MSTC66B3	14-10d	4-10d	38-10d	4,505 KIPS	7,658 KIPS	11,487 KIPS

ICC-ES ESR-2105, LA RR25713

- NOTES
1. BENT STRAPS BY SIMPSON STRONG TIE
  2. NAILS IN POST SHALL BE INSTALLED SYMMETRICALLY.
  3. SEE PLAN, POST IN WALL DETAILS AND POST TO BEAM DETAILS FOR ADDITIONAL POST SIZE REQUIREMENTS.

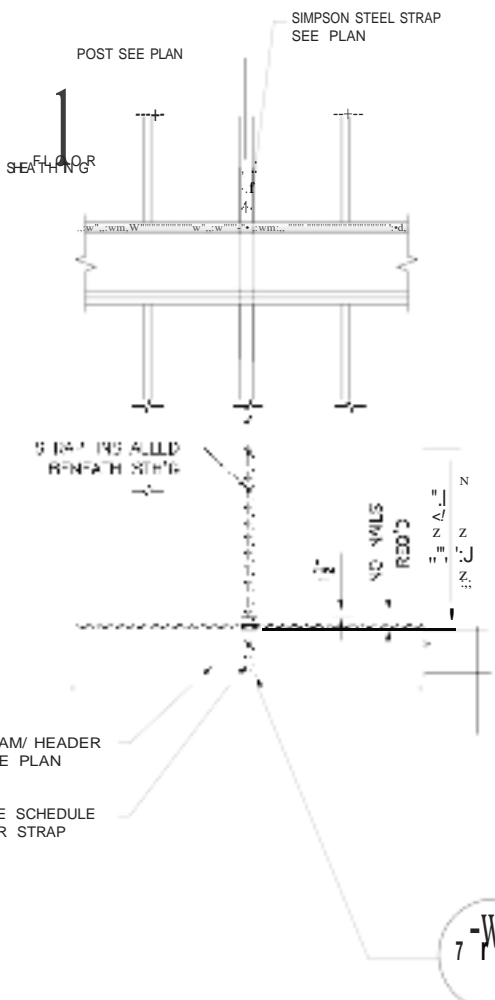
## DETAIL

scale 3/4"=1'-0" 8



## DETAIL

scale 3/4"=1'-0" 7



STRAP	MAX CLEAR SPAN	FASTENERS PER STRAP	ALLOWABLE TENSION (10d)	ICC-ER	IAPMO	LA RR	MSTC BENT STRAP FOR LOWER CONNECTION
MSTA49	18"	26-10d	2020	ESR-2105	ER-124	RR25713	MSTC48B3
MSTC28	18"	12-16d SINKERS	1155	ESR-2105	ER-124	RR25713	MSTC48B3
MSTC40	18"	28-16d SINKERS	2695	ESR-2105	ER-124	RR25713	MSTC48B3
MSTC52	18"	36-16d SINKERS	3465	ESR-2105	ER-124	RR25713	MSTC48B3
MSTC66	18"	44-16d SINKERS	4235	ESR-2105	ER-124	RR25713	MSTC48B3
MSTC66	18"	48-16d SINKERS	4620	ESR-2105	ER-124	RR25713	MSTC48B3
MSTC78	18"	64-16d SINKERS	5860	ESR-2105	ER-124	RR25713	MSTC48B3
MSTC78	18"	68-16d SINKERS	5860	ESR-2105	ER-124	RR25713	MSTC48B3
MST37	18"	76-16d SINKERS	5860	ESR-2105	ER-124	RR25713	MSTC48B3
MST48	18"	20-16d	2465	ESR-2105	ER-124	RR25713	MSTC48B3
MST48	18"	22-16d	2710	ESR-2105	ER-124	RR25713	MSTC48B3
MST60	18"	32-16d	3695	ESR-2105	ER-124	RR25713	MSTC48B3
MST60	18"	34-16d	3695	ESR-2105	ER-124	RR25713	MSTC48B3
MST72	18"	46-16d	4830	ESR-2105	ER-124	RR25713	MSTC48B3
MST72	18"	48-16d	4830	ESR-2105	ER-124	RR25713	MSTC48B3

## DETAIL

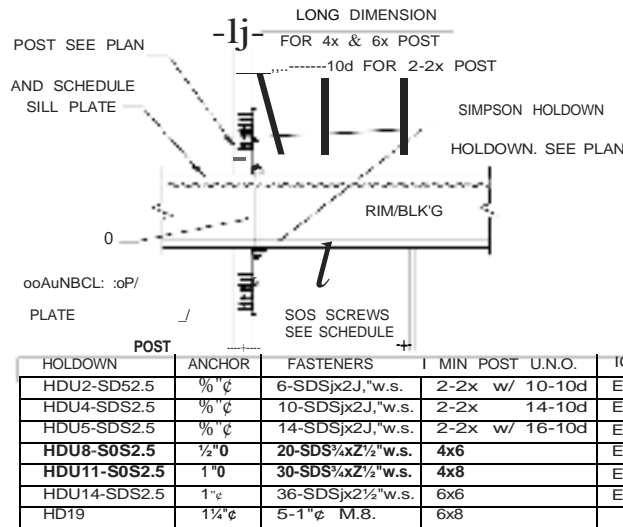
SIMPSON HOLD DOWN	THREADED ROD SIZE, A36	MIN POST SIZE, UNO	MIN WELD SIZE INCHES	FASTENERS	ALLOWABLE LOAD, ASD	ICC	IAPMO UES ER	LA RR	FLORIDA
DT12Z	1/2"	4x4	1/4 FILLET	8-SDS 1/4"x2 1/2"	2145#	ESR 2330		RR25720	FL10441
HDU2	3/8"	4x4	1/4 FILLET	6-SDS 1/4"x2 1/2"	3075#	ESR 2330		RR25720	FL10441
HDU4	3/8"	4x4	1/4 FILLET	10-SDS 1/4"x2 1/2"	4565	ESR 2330		RR25720	FL10441
HDU5	3/8"	4x4	1/4 FILLET	14-SDS 1/4"x2 1/2"	5646#	ESR 2330		RR25720	FL10441
HDUB	1/4"	4x6	1/2 FILLET	20-SDS 1/4"x2 1/2"	7870#	ESR 2330		RR25720	FL10441
HDU11	1"	6x6	1/2 FILLET	30-SDS 1/4"x2 1/2"	11175#	ESR 2330		RR25720	FL10441
HDU14<D	1"	6x6	1/2 FILLET	36-SDS 1/4"x2 1/2"	14445#	ESR 2330		RR25720	FL10441
HD19	1 1/4"	6x8	3/8 FILLET	5-1" 0 M.B.03s	19360#		ER 103	RR25828	FL11496

1. REQUIRES HEAVY HEX ANCHOR NUT
2. HD INSTALLED ON NARROW FACE (5/1" FACE)
3. BOLT HOLES SHALL BE A MINIMUM OF 1/4" TO A MAXIMUM OF 1/8" LARGER THAN THE BOLT DIAMETER
4. BOLTS SHOULD BE SNUGLY TIGHTENED WITH STANDARD CUT WASHERS BETWEEN THE WOOD AND NUT (BPS ARE REQUIRED IN THE CITY AND COUNTY OF LOS ANGELES)
5. SEE PLAN, POST IN WALL DETAILS AND POST TO BEAM DETAILS FOR ADDITIONAL POST SIZE REQUIREMENTS.

## HOLDOWN TO STEEL BEAM DETAIL

## DETAIL

scale 3/4"=1'-0" 15



HOLDOWN	ANCHOR	FASTENERS	MIN POST U.N.O.	ICC-ES ESR	IAPMO	LA RR
HDU2-SDS2.5	3/8"	6-SDSx2J,"w.s.	2-2x w/ 10-10d	ESR-2330		RR25818
HDU4-SDS2.5	3/8"	10-SDSx2J,"w.s.	2-2x 14-10d	ESR-2330		RR25818
HDU5-SDS2.5	3/8"	14-SDSx2J,"w.s.	2-2x w/ 16-10d	ESR-2330		RR25818
HDU8-SDS2.5	1/2"	20-SDSx2 1/2"w.s.	4x6	ESR-2330		RR25818
HDU11-SDS2.5	1"	30-SDSx2 1/2"w.s.	4x8	ESR-2330		RR25818
HDU14-SDS2.5	1"	36-SDSx2 1/2"w.s.	6x6	ESR-2330		RR25818
HD19	1 1/4"	5-1" 0 M.B.	6x8		ER-413	RR25828

1. ANCHORS SHALL BE ASTM A36 THREADED ROD
2. HDU14 REQUIRES HEAVY HEX ANCHOR NUT @ HD SEAT
3. SEE PLAN, POST IN WALL DETAILS AND POST TO BEAM DETAILS FOR ADDITIONAL POST SIZE REQUIREMENTS.

WOOD TO WOOD HD DETAIL

## DETAIL

scale 3/4"=1'-0" 17

## DETAIL

scale 3/4"=1'-0" 20



NOTES:

1. ANCHORAGE DESIGNS CONFORM TO ACI 318-11 APPENDIX D AND ACI 318-14 WITH NO SUPPLEMENTARY REINFORCEMENT FOR CRACKED CONCRETE AS NOTED.
2. ANCHOR STRENGTH REQUIREMENTS REQUIRED GRADE OF W8H-AB ANCHOR BOLT, STANDARD (ASTM F1554) HIGH STRENGTH (HS) (ASTM A449), U.N.O. ON PLANS, USE HIGH STRENGTH ANCHOR (HS) AND FOUNDATION DIMENSIONS FOR HS ANCHOR
3. SEISMIC ANCHORAGE DESIGNS CONFORM TO ACI 318-11 SECTION 9.3.3.4.3 AND ACI 318-14 SECTION 17.2.3.4.3, FOR 2500 PSI CONCRETE
4. FOUNDATION DIMENSIONS ARE FOR ANCHORAGE ONLY. SEE FOUNDATION DETAILS FOR ADDITIONAL INFORMATION.
5. REFER TO FOUNDATION DETAILS FOR  $\phi_c$ .
6. SEE PLAN AND FOUNDATION DETAILS FOR ADDITIONAL FOUNDATION INFORMATION

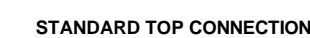


NOTES:

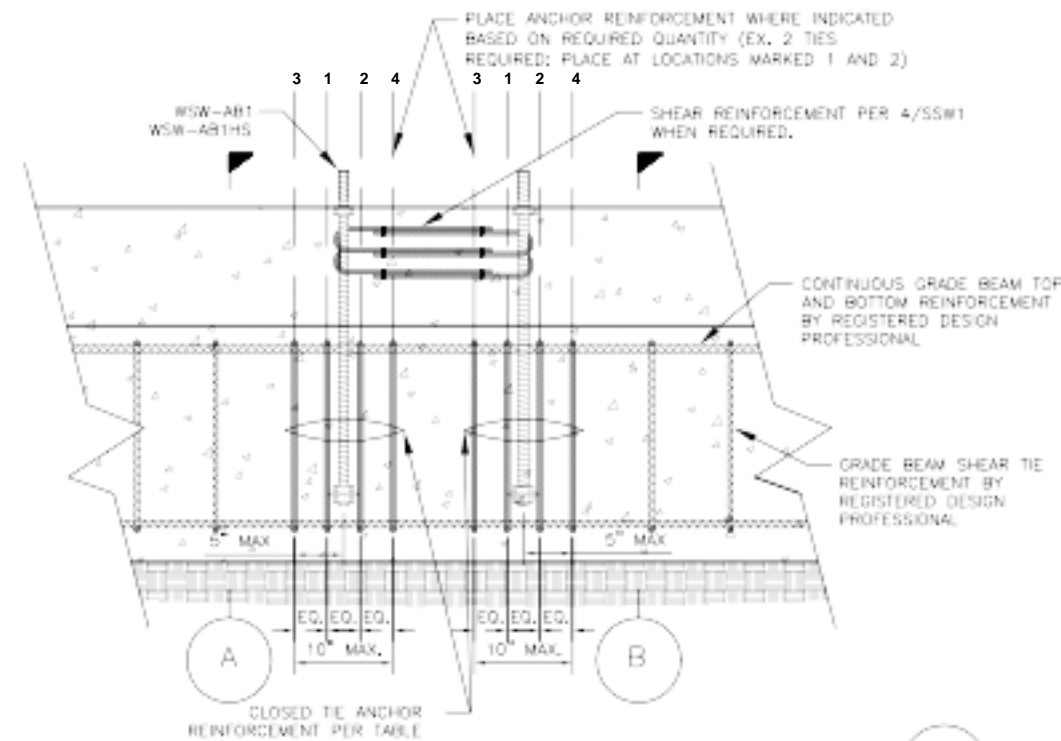
1. SHEAR ANCHORAGE DESIGNS CONFORM TO ACI 318-11 AND ACI 318-14 AND ASSUME MINIMUM 2,500 PSI CONCRETE.
2. SHEAR REINFORCEMENT IS NOT REQUIRED FOR INTERIOR FOUNDATION APPLICATIONS (PANEL INSTALLED AWAY FROM EDGE OF CONCRETE), OR BRACED WALL PANEL APPLICATIONS.
3. WHERE NOTED, MINIMUM CURB/STEWALL WIDTH IS 6 INCHES WHEN STANDARD STRENGTH ANCHOR BOLT IS USED.
4. USE (1) #3 TIE FOR #5W12 WHEN PANEL DESIGN SHEAR FORCE EXCEEDS TABULATED ANCHORAGE ALLOWABLE SHEAR LOAD.
5. ASTM A615 GRADE 60 REINFORCEMENT

**SHEAR ANCHORAGE REINFORCEMENT DETAIL**

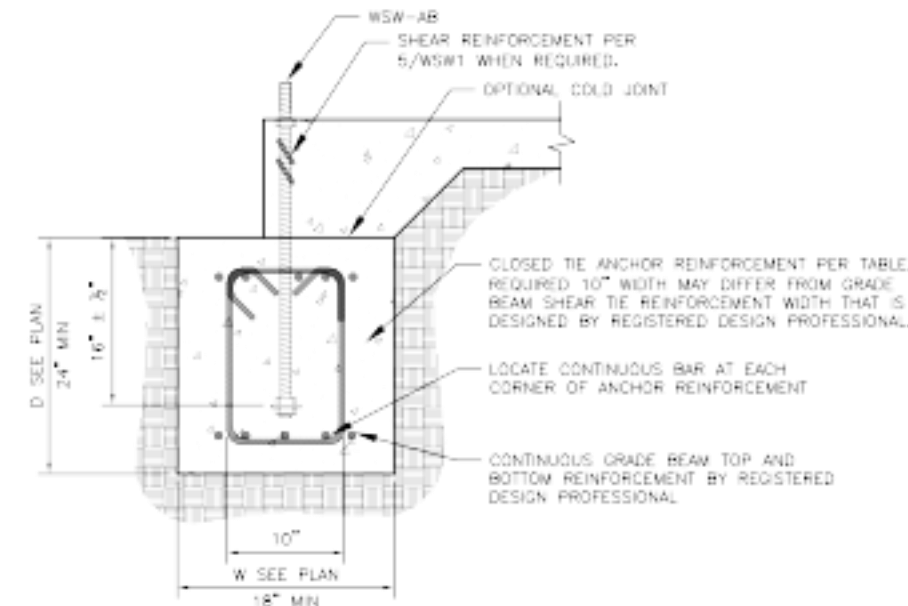
WSW-TOW ALTERNATE CONNECTION KIT		
MODEL NO.	FASTENER QUANTITY	
	SD #10 x 1 1/2"	SDS 3/4" x 6"
WSW-TOW12KT	20	2
WSW-TOW18KT	28	4
WSW-TOW24KT	40	8



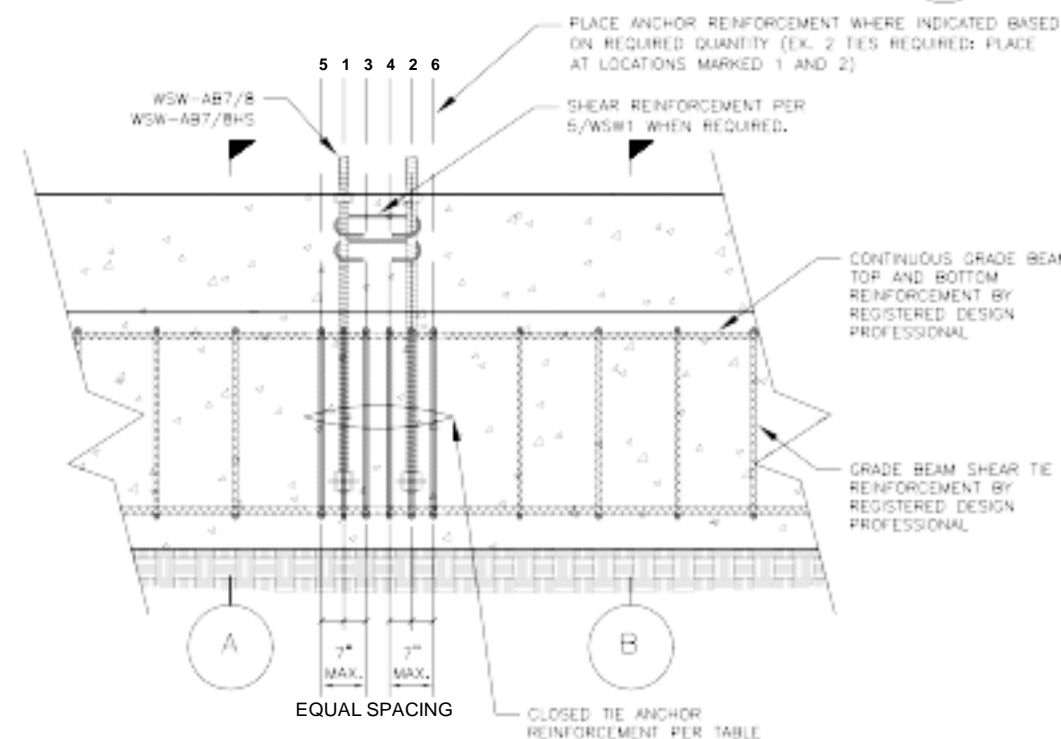




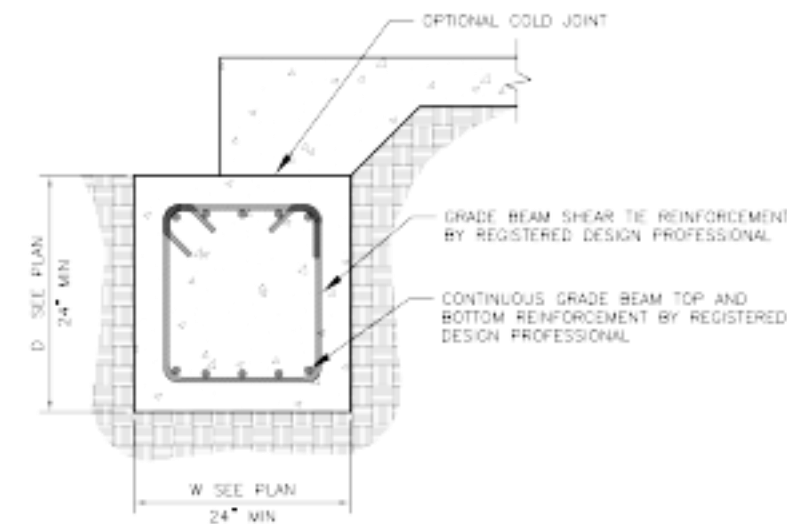
**GRADE BEAM ELEVATION AT 24" WALL MODEL 1**



**GRADE BEAM SECTION "A" AT ANCHOR REINFORCEMENT**



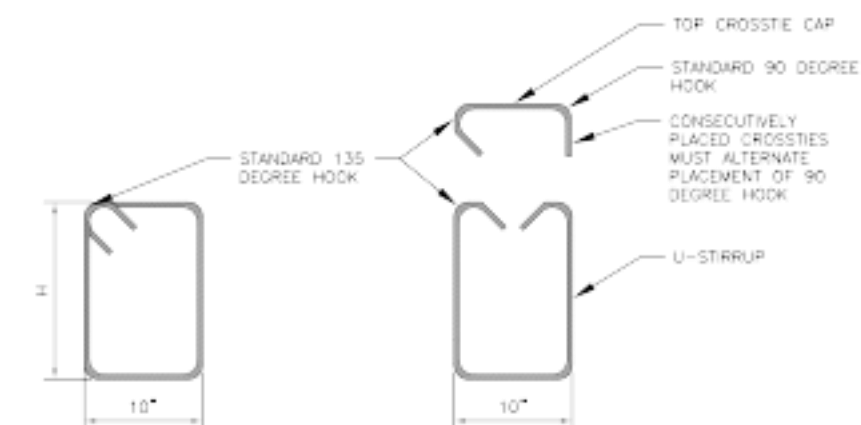
**GRADE BEAM ELEVATION AT 12" AND 18" WALL MODEL 2**



**GRADE BEAM SECTION "B" AWAY FROM ANCHOR REINFORCEMENT**

WSW GRADE BEAM ANCHOR REINFORCEMENT						
STRONG-WALL WOOD SHEARWALL WIDTH (in.)	ANCHOR MODEL NO.	ANCHOR DIAMETER (in.)	ANCHOR REINFORCEMENT FOR WIND AND SEISMIC <sup>1,2,3</sup>		AMPLIFIED LRFD APPLIED DESIGN SEISMIC MOMENT (ft.-kg.) <sup>4,5,6,7</sup>	
			STANDARD STRENGTH WSW-AB	HIGH STRENGTH (HS) WSW-AB	STANDARD STRENGTH WSW-AB	HIGH STRENGTH (HS) WSW-AB
12" MODEL	WSW-AB7/8 WSW-AB7/BHS	7/8	4- #4 CLOSED TIES PER ②	6- #4 CLOSED TIES PER ②	24,700	24,700
18" MODEL					44,100	50,600
24" MODEL	WSW-AB1 WSW-AB1HS	1	2- #4 CLOSED TIES PER ①	4- #4 CLOSED TIES PER ①	75,600	93,600

- NOTES:
- ANCHOR REINFORCEMENT CONFORMS TO ACI 318-14 SECTION 17.4.2.9 AND ACI 318-11 SECTION D.5.2.9. FULL-SCALE TESTING WAS USED TO VALIDATE ANCHOR REINFORCEMENT CONFIGURATION AND PLACEMENT.
  - MINIMUM CONCRETE COMPRESSIVE STRENGTH, SEE CONCRETE NOTES. MIN DESIGN STRENGTH  $f'_c = 2500$  psi.
  - CLOSED TIE ANCHOR REINFORCEMENT TO BE ASTM A615 GRADE 60 (MIN) #4 REBAR.
  - SEE PLAN GRADE BEAM DETAILS FOR GRADE BEAM REINFORCEMENT AND ADDITIONAL GRADE BEAM INFORMATION.
  - SIMPSON STRONG-TIE RECOMMENDS USING THE TABULATED MINIMUM AMPLIFIED LRFD APPLIED SEISMIC DESIGN MOMENT TO ENSURE GRADE BEAM DESIGN FLEXURE AND SHEAR STRENGTH IS ADEQUATE TO PREVENT PLASTIC HINGE FORMATION UNDER DEMANDS ASSOCIATED WITH ANCHORAGE FORCES CORRESPONDING TO ACI 318-14 SECTION 17.2.3.4.3 AND ACI 318-11 SECTION 21.3.4.3.
  - DESIGNER MAY USE REDUCED MOMENT DUE TO APPLIED WSW (LATERAL LOAD). MINIMUM MOMENT SHALL BE THE LESSER OF THE TABULATED MOMENT OR THE AMPLIFIED LRFD DESIGN MOMENT FOR SEISMIC: (ASD DESIGN DEMAND  $SHEAR_{0.7}$ )  $\times \phi_c \times$  WSW WALL HEIGHT FOR GRADE BEAM DESIGN.
  - MINIMUM GRADE BEAM DESIGN MOMENT FOR WIND AND SEISMIC IN SEISMIC DESIGN CATEGORY A AND B AND DETACHED 1 AND 2 FAMILY DWELLINGS IN SDC C: (ASD DESIGN DEMAND  $SHEAR_{0.6}$ )  $\times$  WSW WALL HEIGHT.
  - CLOSED TIE MAY BE SINGLE PIECE HOOP OR TWO PIECE ASSEMBLY WITH A U-STIRRUP WITH STANDARD 135 DEGREE HOOKS AND A TOP CROSS TIE CAP. SEE DETAIL 6/WSW1.1.
  - SEE DETAILS FOR GRADE BEAM ANCHOR REINFORCEMENT PLACEMENT, INSTALLATION AND SPACING REQUIREMENTS. CLOSED TIE ANCHOR REINFORCEMENT QUANTITY IS PER WALL FOR THE 12" AND 18" WALL MODELS, AND PER ANCHOR FOR THE 24" MODEL.



**#4 SINGLE PIECE HOOP**

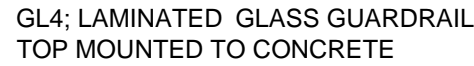
**#4 TWO PIECE ASSEMBLY**

**CLOSED TIE ANCHOR REINFORCEMENT**

## WSW-AB GRADE BEAM REINFORCEMENT AND DESIGN MOMENTS



scale  $\frac{3}{4}"=1'-0"$  **9**



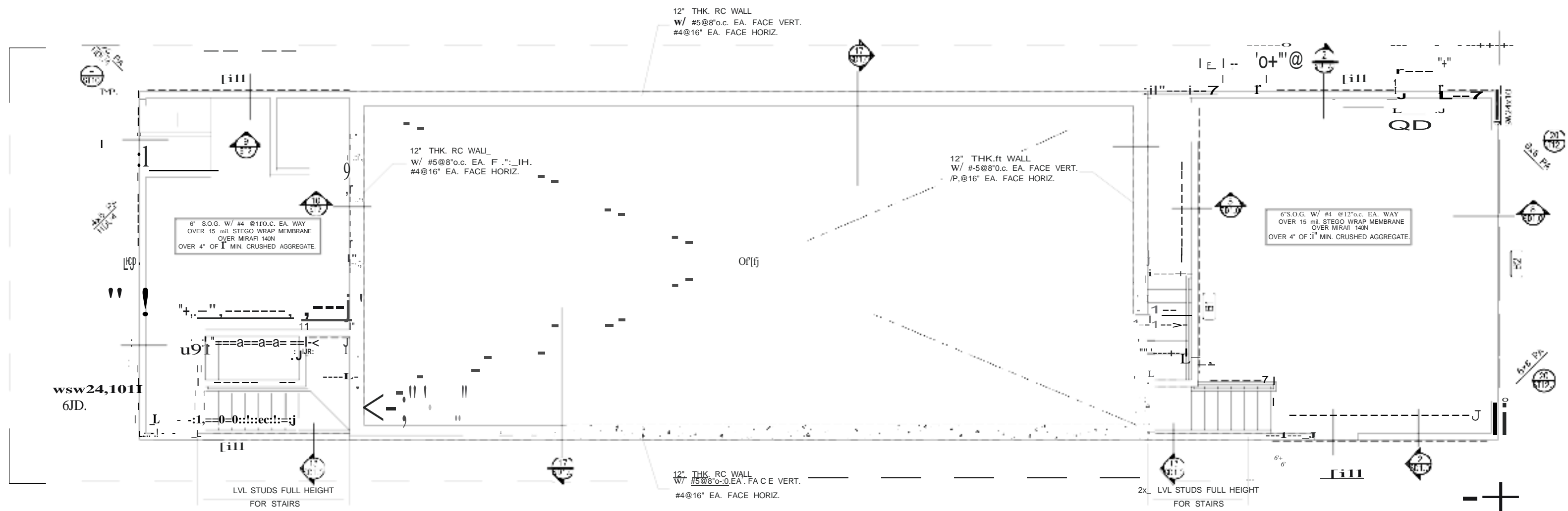
scale  $\frac{3}{4}" = 1'-0"$  14

scale  $\frac{3}{4}" = 1'-0"$  15

scale  $\frac{3}{4}'' = 1'-0''$  20







- NOTES:
- SEE SHEET ST1 AND ST2 FOR TYPICAL CONCRETE/CMU CURB AND REBAR DETAILS
  - SEE SHEET ST3 FOR TYPICAL CMU WALL FRAMING AND OPENING DETAILS
  - SEE SHEET ST5 FOR TYPICAL STUD WALL FRAMING REQUIREMENTS
  - SEE SHEET ST6 FOR SHEAR WALL SCHEDULE AND SHEAR TRANSFER DETAIL
  - SEE SHEET ST7 FOR DIAPHRAGM CONNECTIONS AND SCHEDULE
  - SEE SHEET ST8 FOR TYPICAL POST IN WALL DETAILS
  - SEE DETAIL ST9 FOR DRAG DETAILS
  - SEE SHEET ST10 AND ST11 FOR HOLDOWN DETAILS AND ITS PAD FOOTING SIZES
  - SEE SHEET ST12 FOR STRONGWALL DETAILS
  - SHEAR WALLS SHOWN ON SHEET S2.0 ARE FOR SHEAR WALL FROM GROUND LEVEL TO SECOND LEVEL
  - SHEAR WALLS SHOWN ON SHEET S3.0 ARE FOR SHEARWALL FROM SECOND LEVEL TO THIRD LEVEL

HOLDOWN FOOTING SCHEDULE					
SIMPSON HOLOWN	ANCHOR SIZE	MIN. DEPTH	MIN. WIDTH	MIN. LENGTH	MIN. REINFORCEMENT R EA. WAY U.N.O
DTT1Z	3/4"¢	12"	23"	23"	#4@12"o.c.
DTT2Z-SDS2.5	1/2"¢	12"	23"	23"	#4@12"o.c.
HDU2-SDS2.5	9/16"¢	15"	31"	31"	#4@12"o.c.
HDU4-SDS2.5	5/8"¢	16"	31"	31"	#4@8"o.c.
HDU5-SDS2.5	5/8"¢	17"	35"	35"	#4@8"o.c.
HDU8-SDS2.5	1/2"¢	20"	43"	43"	#5@12"o.c.
HDU11-SDS2.5	1"¢	23"	53"	53"	#5@8"o.c.
HDU14-SDS2.5	1"¢	26"	61"	61"	#5@8"o.c.
HHQ14-SDS2.5	1"¢	26"	61"	61"	#5@8"o.c.
HD19	1 1/4"¢	29"	71"	71"	#5@6"o.c.

G:\SoilWorks Inc. has reviewed the plans from a geologic/geotechnical engineering standpoint only. The plans are in compliance with the geotechnical engineering recommendations presented in the reference project report(s) and subsequent addendum(s). This review does not include checking the accuracy of the civil and structural engineering design, including dimensions, including lines, grades, or measurements with building and foundation details, which are the purview of others.

Project No. W-1  
Report(s) Do On 7/10/24  
Signature: WJI Date: 7/10/24  
Signature: [Signature] Date: 7/10/24

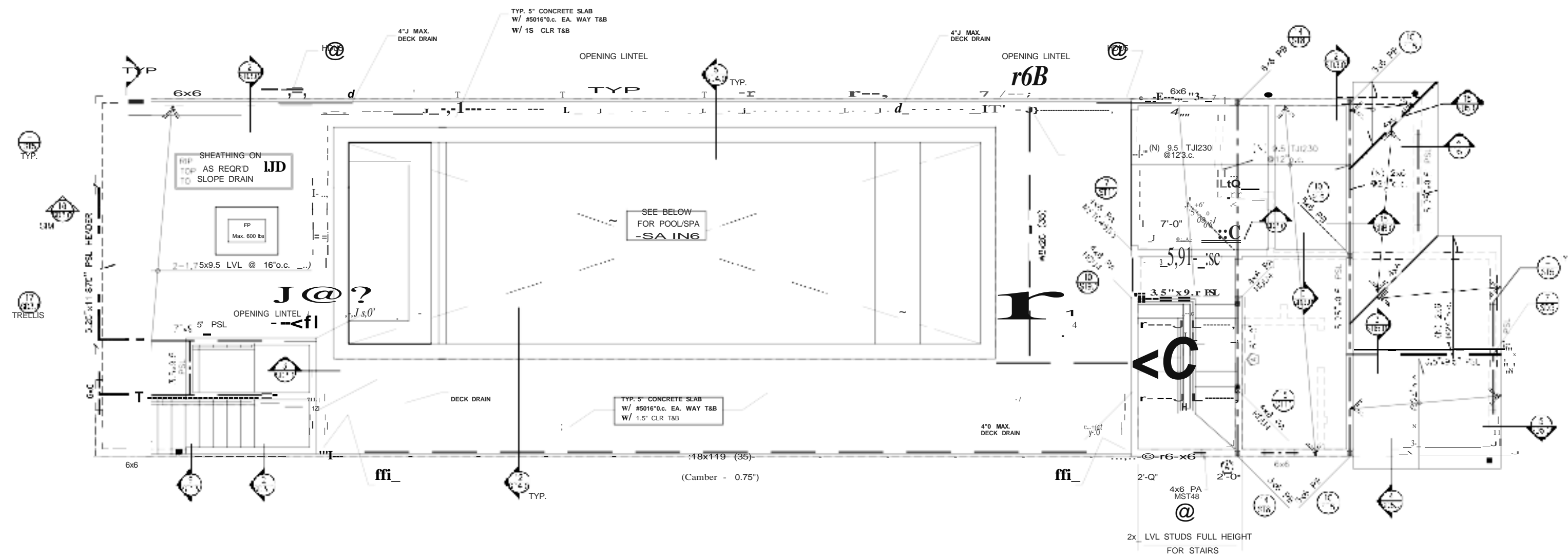
Professional Engineer Seal: State of California, No. 27796, Exp. 7/31/25

FOUNDATION SCHEDULE CONTINUOUS FOOTINGS							
BEAM FOOTING	STRUCTURAL DEPTH (MIN)	DEPTH BELOW ADJACENT GRADE (MIN)	WIDTH	TOP REBAR	BOTTOM REBAR	SHEAR TIES	NOTES
B1	2'-0"	2'-0"	1'-6"	(2) #5	(2) #5		
B2	2'-0"	2'-0"	2'-0"	(3) #5	(3) #5		
B3	3'-0"	3'-0"	1'-6"	(2) #5	(2) #5		

FOUNDATION SCHEDULE PAD FOOTINGS										
PAD FOOTING	STRUCTURAL DEPTH (MIN)	DEPTH BELOW GRADE	WIDTH	LENGTH	BOTTOM REBAR	TOP REBAR	PEDESTAL WIDTH	PEDESTAL LENGTH	PEDESTAL REBAR	PEDESTAL TIES
F1	1'-3"	2'-0"	3'-0"	4'-6"	#5@12" EA. WY.					
F2	1'-3"	2'-0"	3'-0"	3'-0"	(4)-#5 EA. WY.					







**FLOOR DIAPHRAGM:**

1Ja" APA RATED PLY SHT'G W/  
 10d@ 6" o.c. B.N.  
 10d@ 6" o.c. E.N.  
 10d@ 12" o.c. F.N.  
 W/ 24" SPAN RATING  
 'BLOCK ALL EDGES'

**ROOF DIAPHRAGM:**

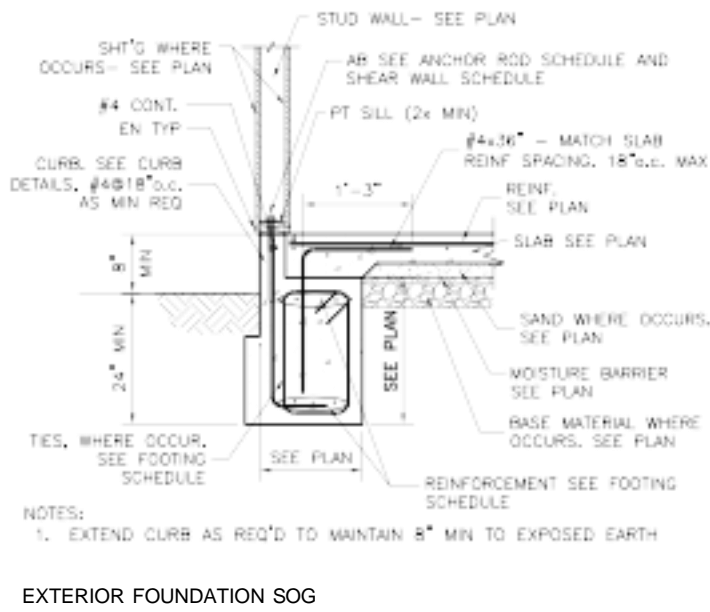
1/2" APA RATED PLY SHT'G W/  
 10d@ 6" o.c. B.N.  
 10d@ 6" o.c. E.N.  
 10d@ 12" o.c. F.N.  
 W/ 24" SPAN RATING  
 'UNBLOCK ALL EDGES'

**NOTES:**

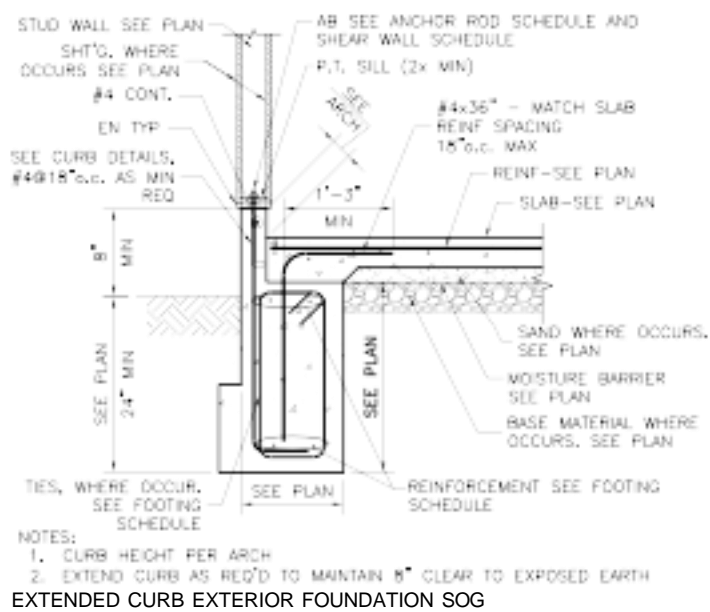
1. SEE SHEET ST1 AND ST2 FOR TYPICAL CONCRETE/CMU CURB AND REBAR DETAILS
2. SEE SHEET ST3 FOR TYPICAL CMU WALL FRAMING AND OPENING DETAILS
3. SEE SHEET ST5 FOR TYPICAL STUD WALL FRAMING REQUIREMENTS
4. SEE SHEET ST6 FOR SHEAR WALL SCHEDULE AND SHEAR TRANSFER DETAIL
5. SEE SHEET ST7 FOR DIAPHRAGM CONNECTIONS AND SCHEDULE
6. SEE SHEET ST8 FOR TYPICAL POST IN WALL DETAILS
7. SEE DETAIL ST9 FOR DRAG DETAILS
8. SEE SHEET ST10 AND ST11 FOR HOLDOWN DETAILS AND ITS PAD FOOTING SIZES
9. SEE SHEET ST12 FOR STRONGWALL DETAILS
10. SHEAR WALLS SHOWN ON SHEET S2.0 ARE FOR SHEAR WALL FROM GROUND LEVEL TO SECOND LEVEL.
11. SHEAR WALLS SHOWN ON SHEET S3.0 ARE FOR SHEARWALL FROM SECOND LEVEL TO THIRD LEVEL.



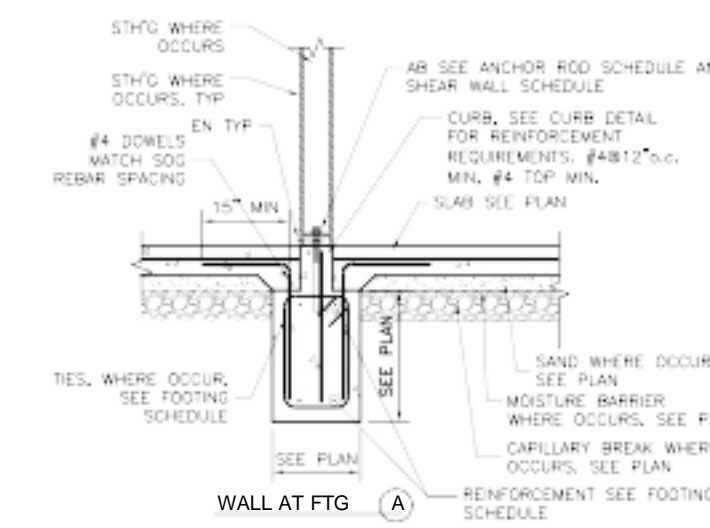




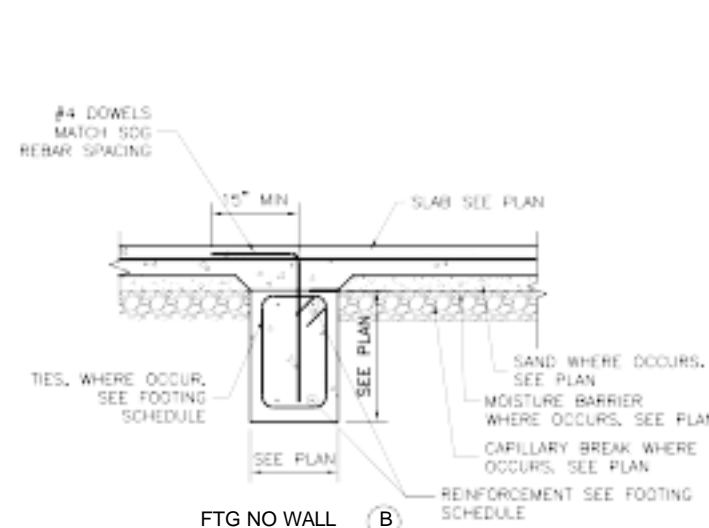
DETAIL scale 3/4"=1'-0" 1



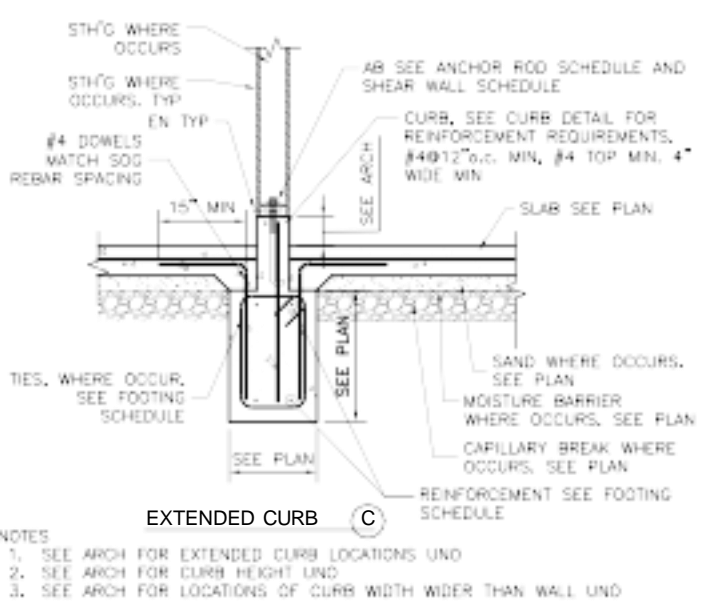
DETAIL scale 3/4"=1'-0" 2



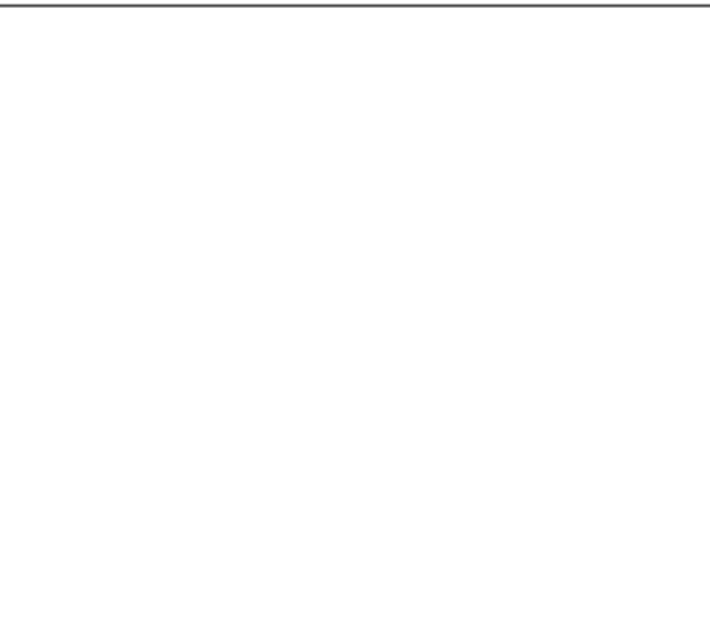
DETAIL scale 3/4"=1'-0" 3



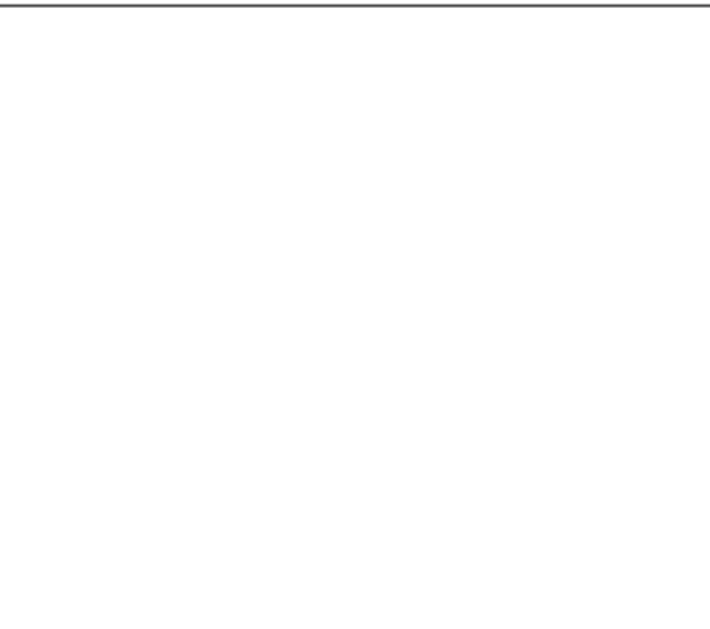
DETAIL scale 3/4"=1'-0" 4



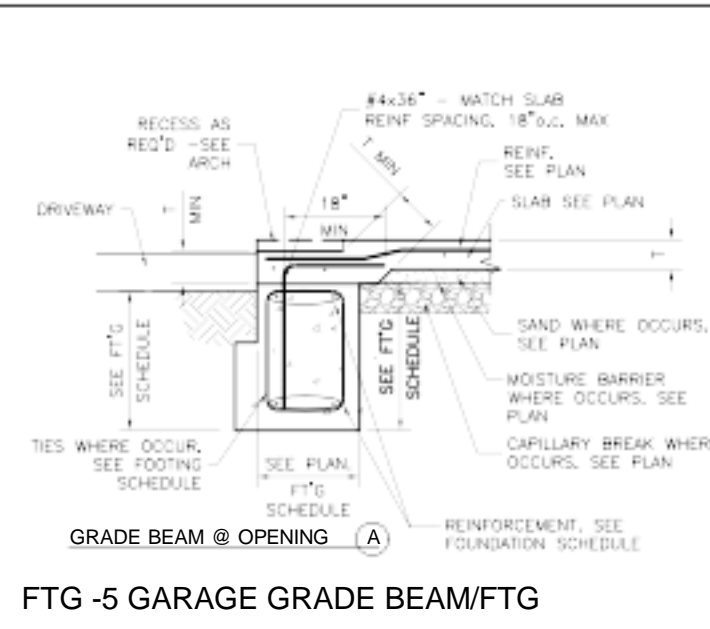
DETAIL scale 3/4"=1'-0" 5



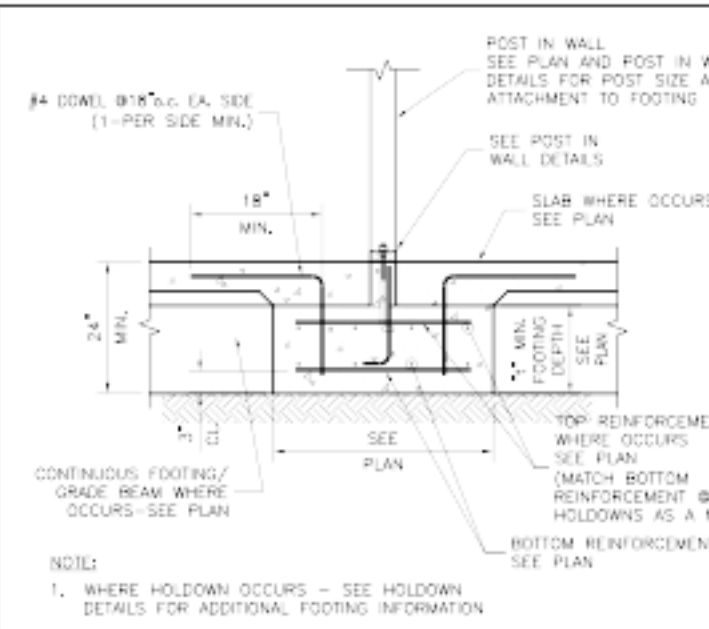
DETAIL scale 3/4"=1'-0" 6



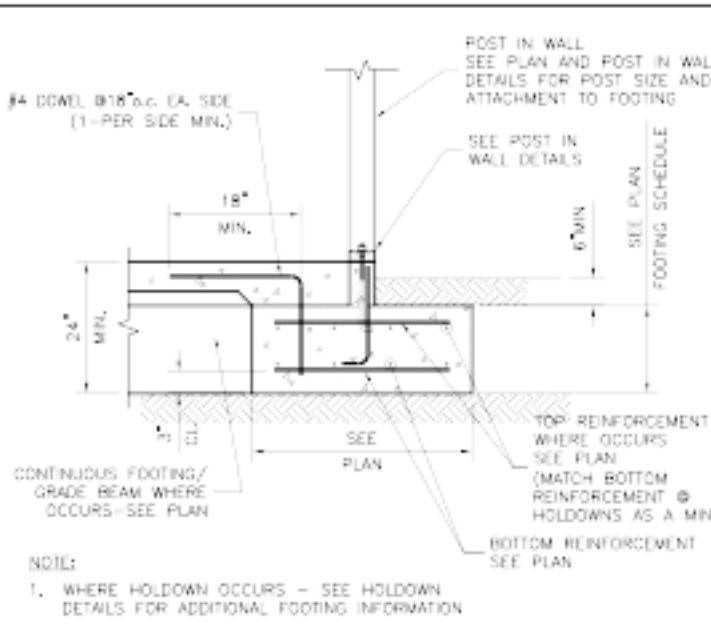
DETAIL scale 3/4"=1'-0" 7



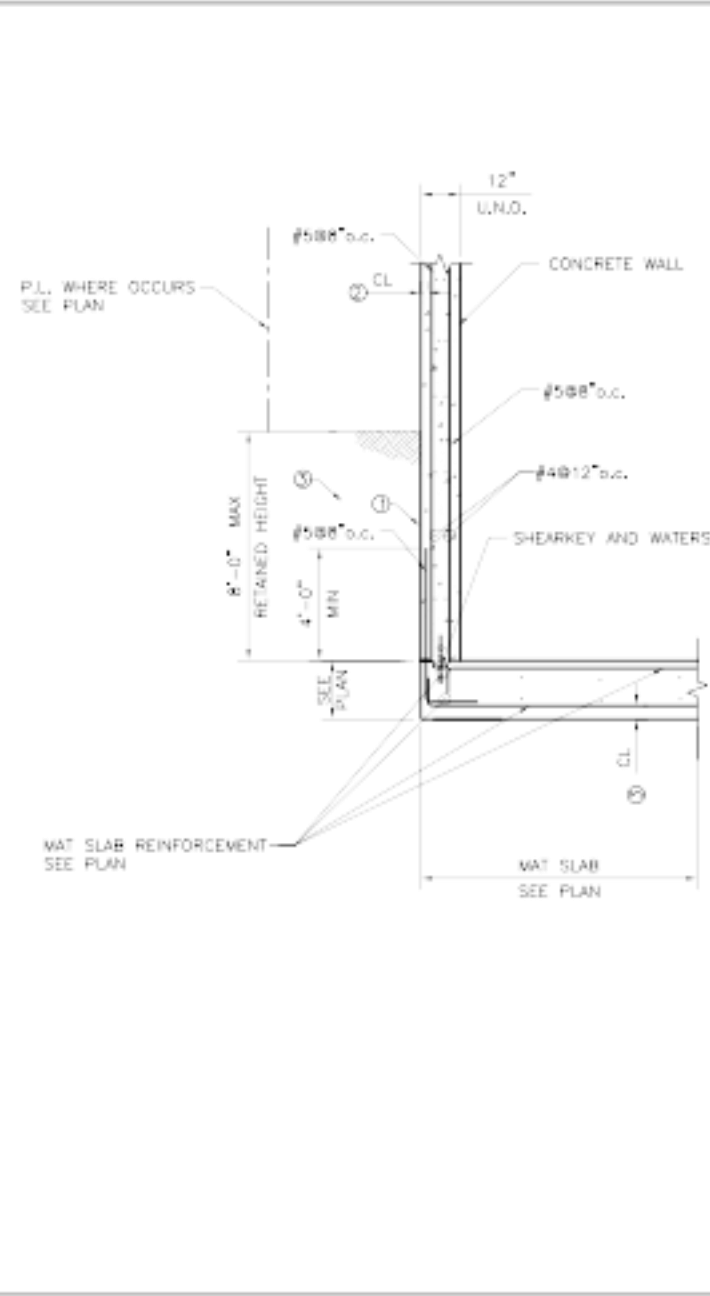
DETAIL scale 3/4"=1'-0" 8



DETAIL scale 3/4"=1'-0" 9



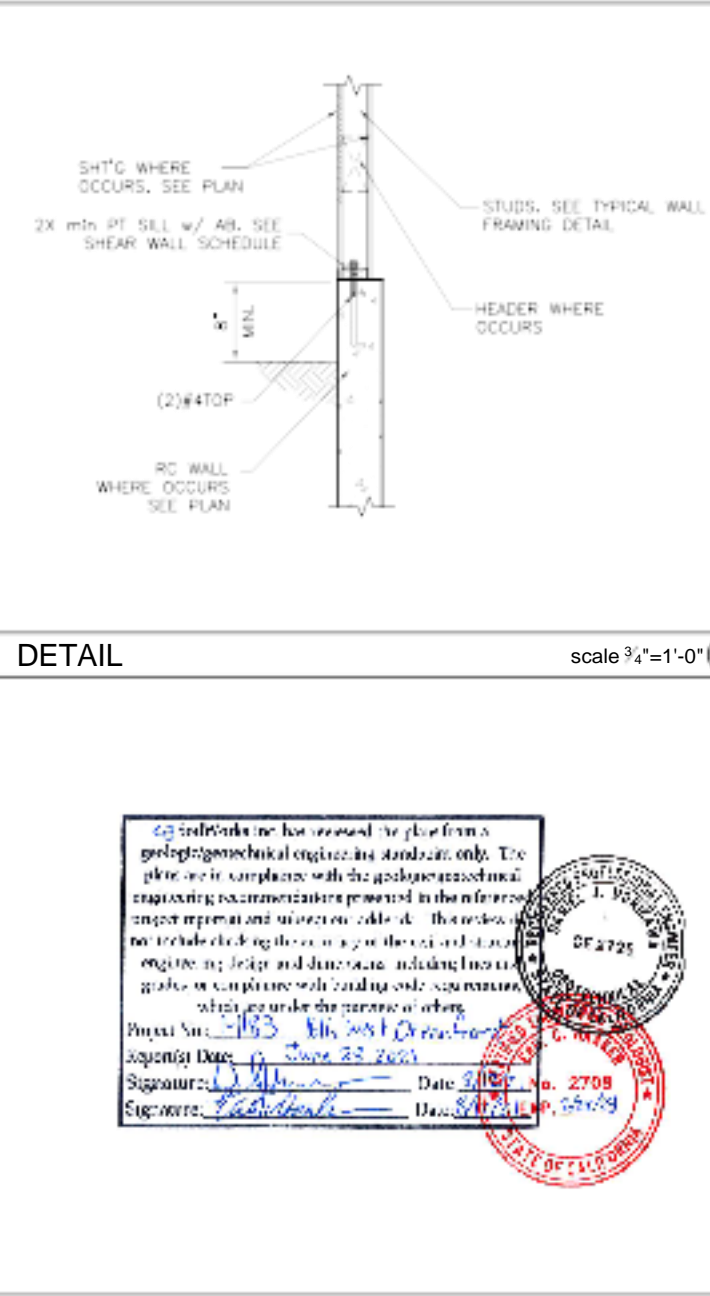
DETAIL scale 3/4"=1'-0" 10



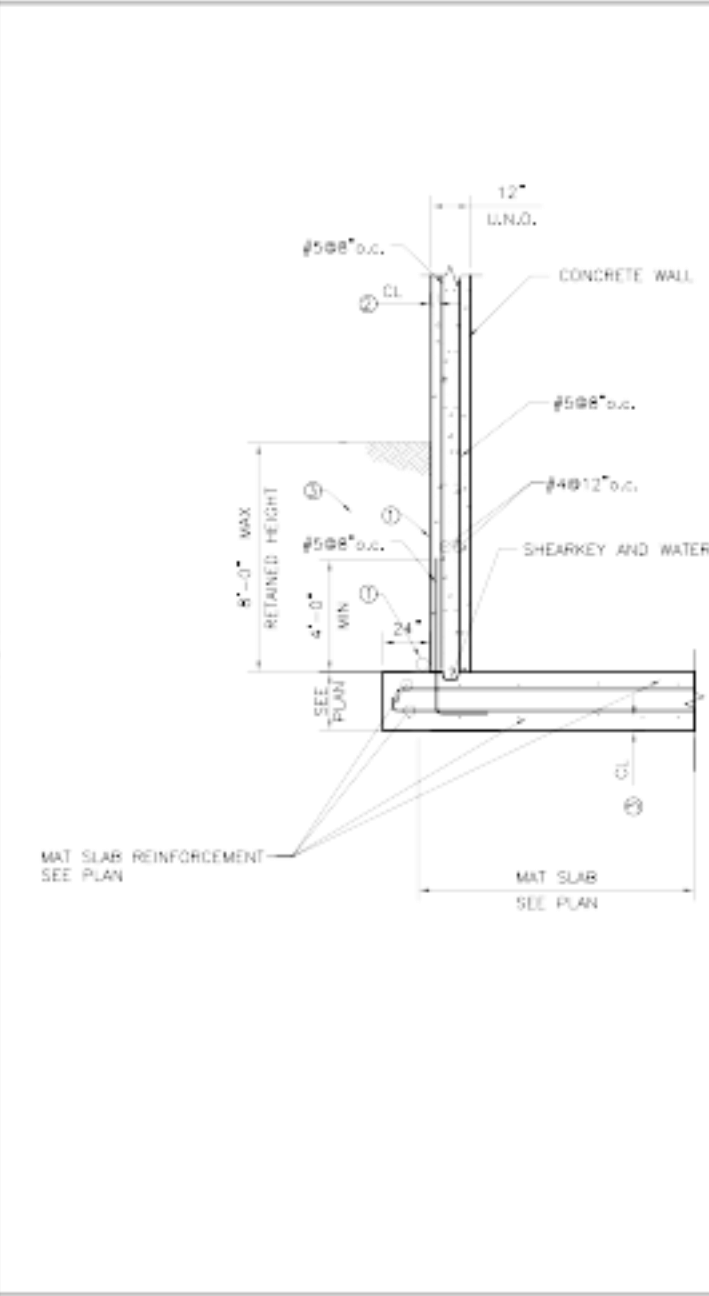
DETAIL scale 3/4"=1'-0" 11



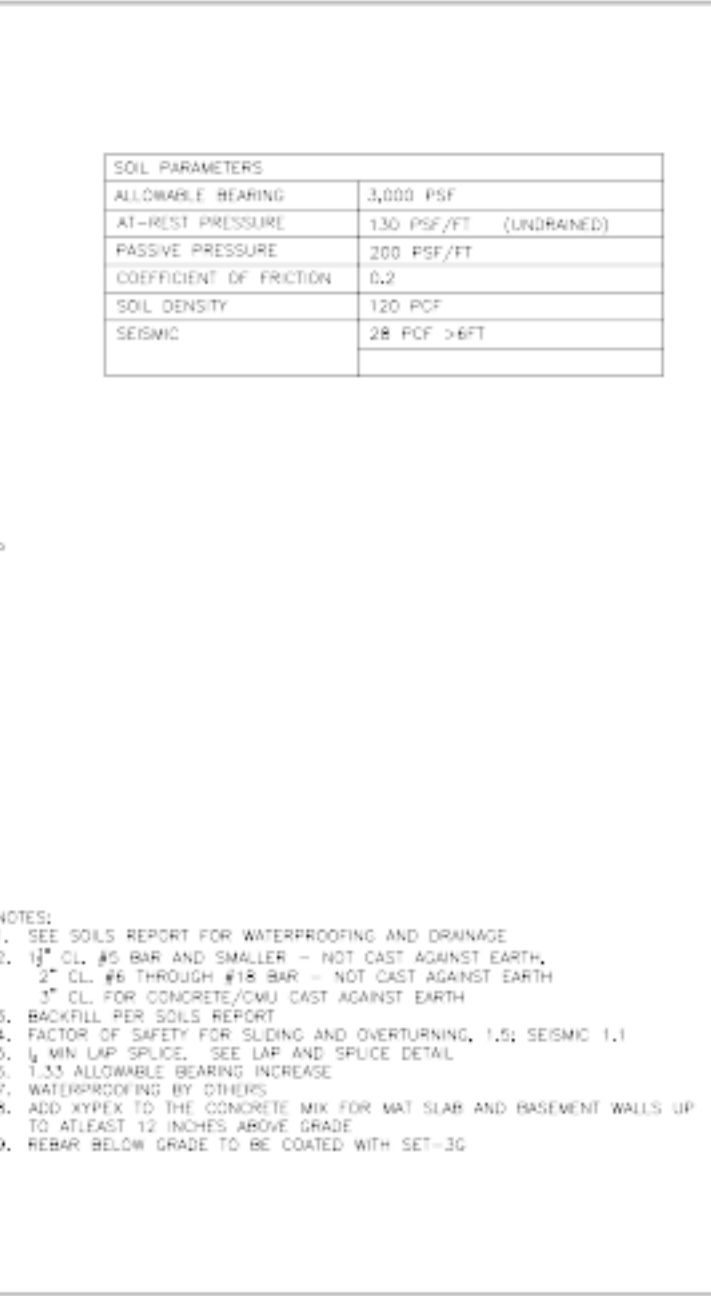
DETAIL scale 3/4"=1'-0" 12



DETAIL scale 3/4"=1'-0" 13

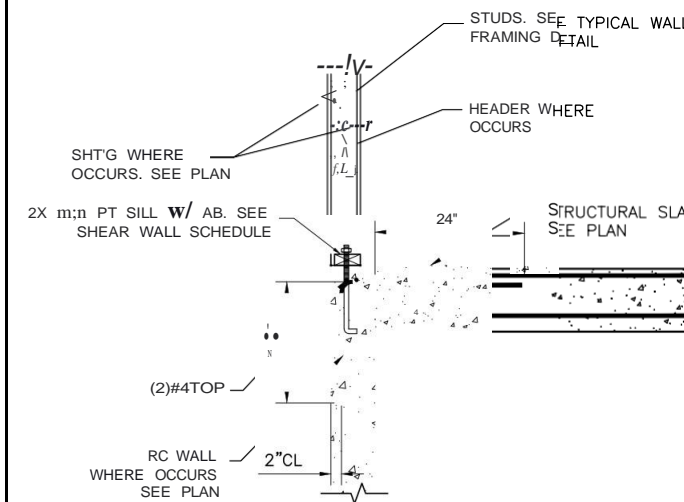
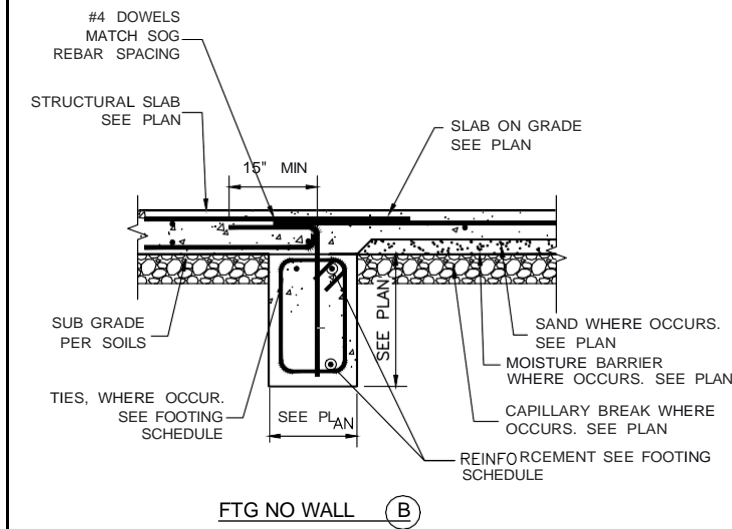
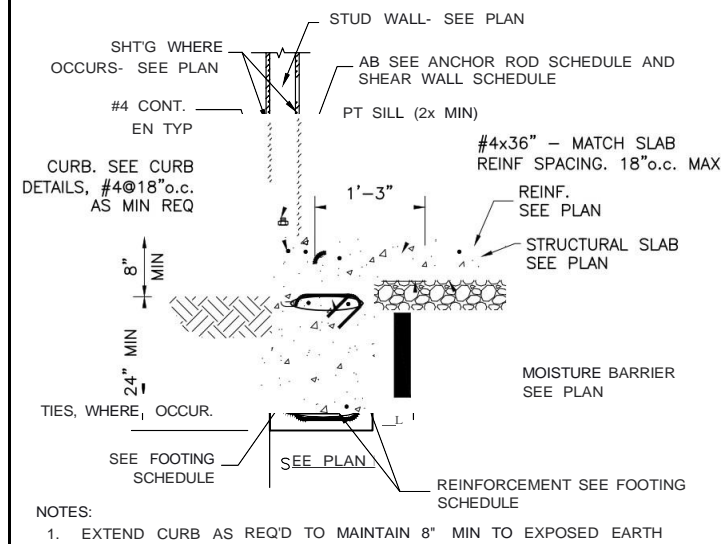
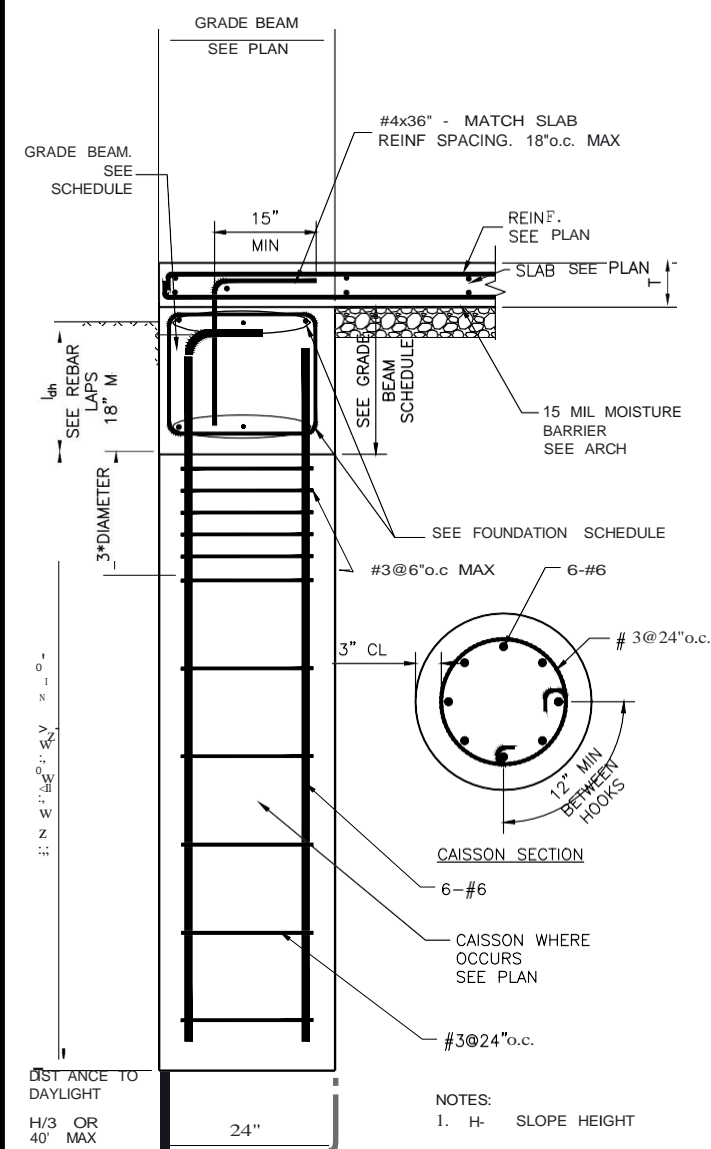


DETAIL scale 3/4"=1'-0" 14



DETAIL scale 3/4"=1'-0" 15





C.J/SoilWorks Tnc. has reviewed the plans from a geologic/geotechnical engineering standpoint only. The plans are in compliance with the geologic/geotechnical engineering recommendations presented in the referenced project report(s) and subsequent work. This review does not include checking the accuracy of the civil and structural engineering design, including the foundation, grades, or compliance with building and other requirements, which are under the purview of others.

Project No.: 1-1 1 Wt. + Clean front  
 Report(s) Da i.e. "e 2-7-2020"  
 Signature: \_\_\_\_\_ Date: 8/27/21 No. 2708  
 Signature: FSH/A Date: 8/27/21 EXP. 2/28/23



EXTERIOR FOUNDATION SOG

DETAIL scale  $\frac{3}{4}" = 1'-0"$  2

DETAIL scale  $\frac{3}{4}" = 1'-0"$  3

DETAIL scale  $\frac{3}{4}" = 1'-0"$  4

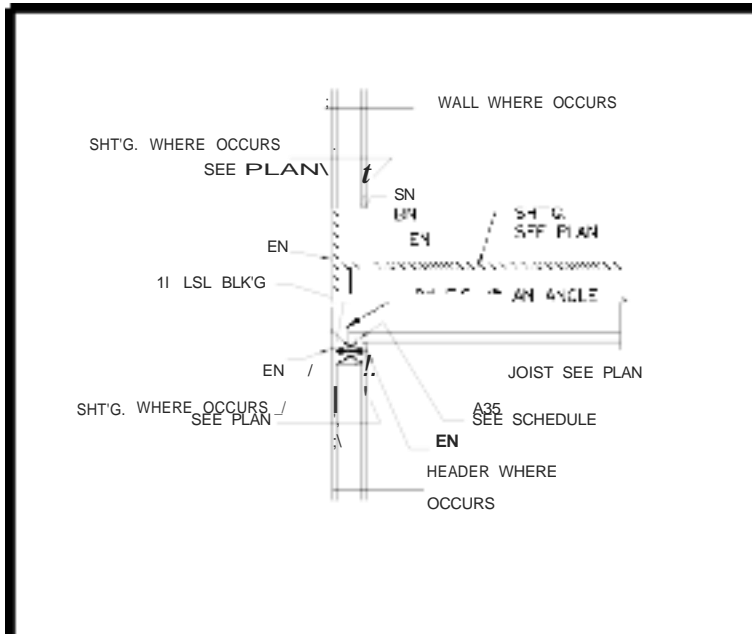
DETAIL scale  $\frac{3}{4}" = 1'-0"$  6

--	--

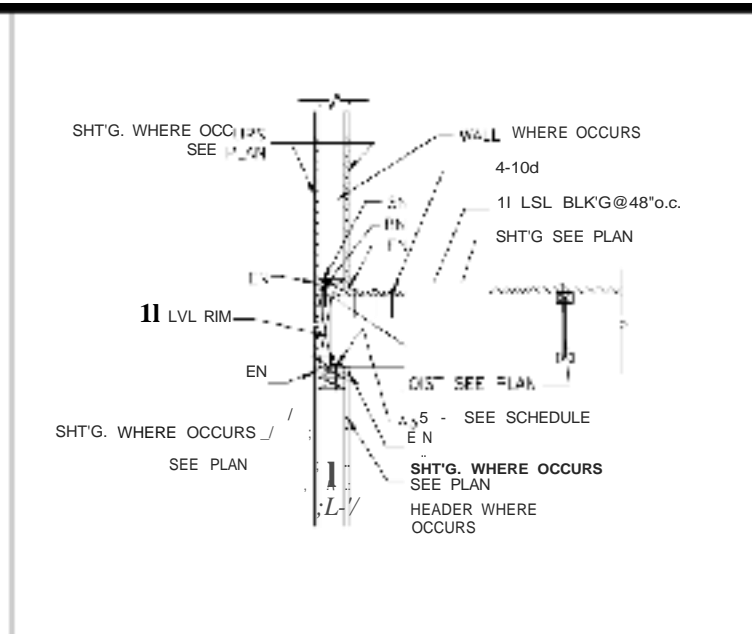
--	--

--	--

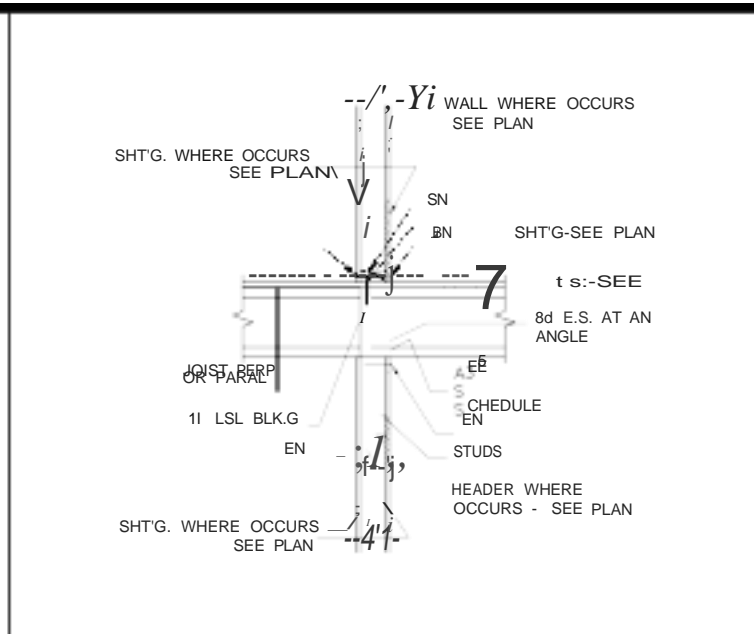
--	--



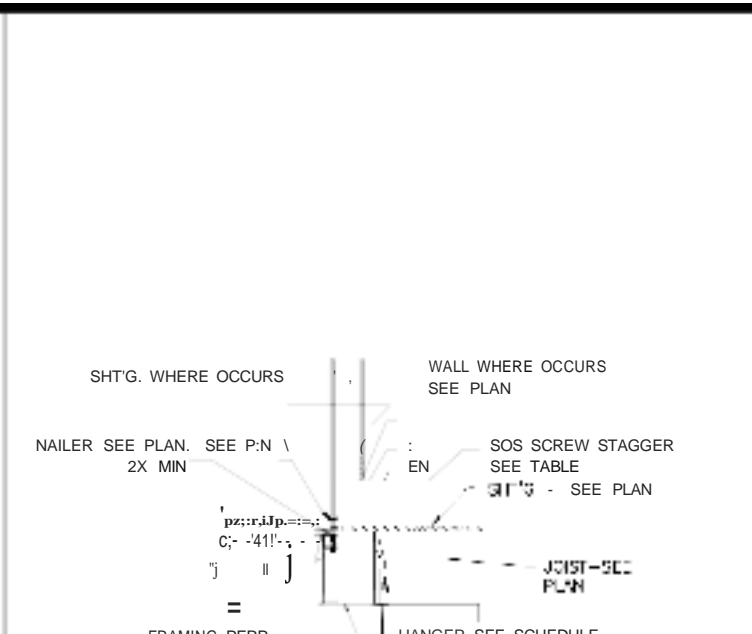
DETAIL scale  $\frac{3}{4}"=1'-0"$  1



DETAIL scale  $\frac{3}{4}"=1'-0"$  2

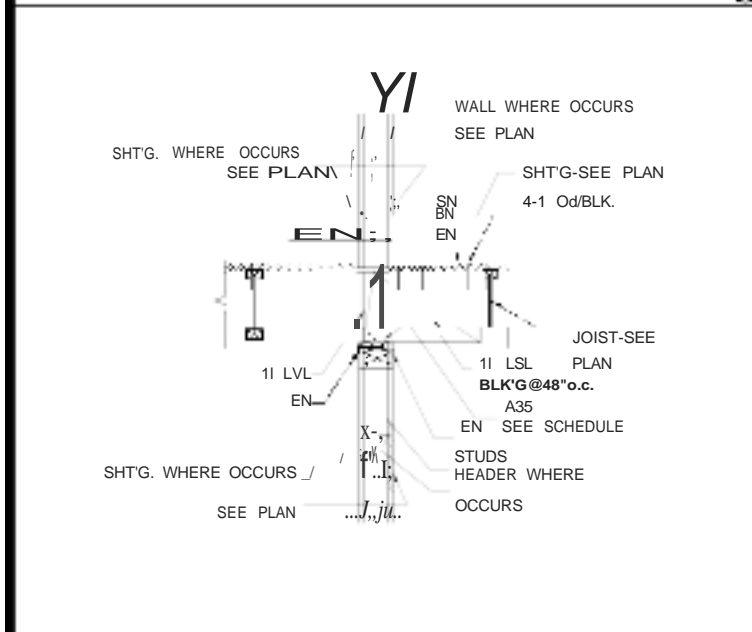


DETAIL scale  $\frac{3}{4}" = 1'-0"$  3

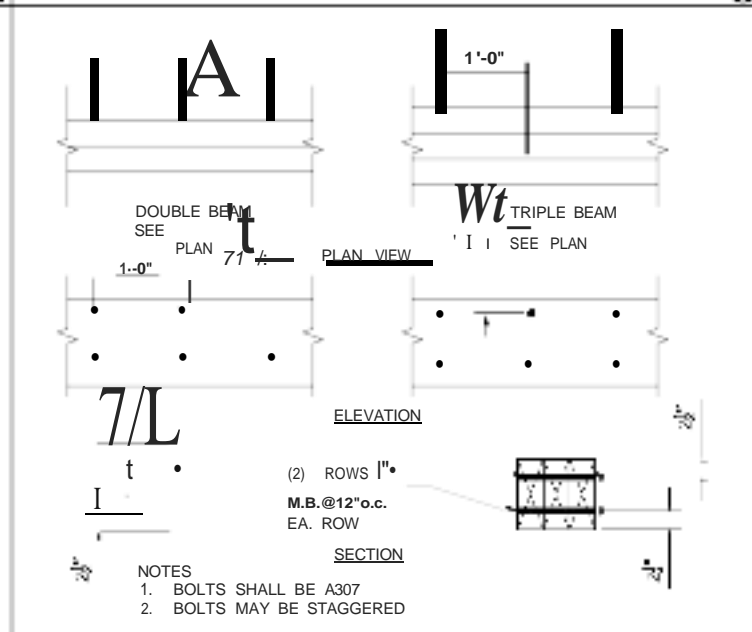


FLOOR JOIST HANGER SCHEDULE				
JOIST	SIMPSON HANGER	NAILER DF/SP	TOP FLANGE NAILING	ALLOWABLE LOAD
9I TJ1 210	ITS2.06/9.5	2-2x	6-10d	1220#
11J TJ1 210	ITS2.06/11.88	2-2x	6-10d	1220#
14 TJ1 210	ITS2.06/14	2-2x	6-10d	1220#
16 TJ1 210	ITS2.06/16	2-2x	6-10d	1220#
9I TJ1 230	ITS2.37/9.5	2-2x	6-10d	1220#
11J TJ1 230	ITS2.37/11.88	2-2x	6-10d	1220#
14 TJ1 230	ITS2.37/14	2-2x	6-10d	1220#
16 TJ1 230	ITS2.37/16	2-2x	6-10d	1220#
11J TJ1 360	ITS2.37/11.88	2-2x	6-10d	1220#
14 TJ1 360	ITS2.37/14	2-2x	6-10d	1220#
16 TJ1 360	ITS2.37/16	2-2x	6-10d	1220#
11J TJ1 560	ITS3.56/11.88	2-2x	6-10d	1220#
14 TJ1 560	ITS3.56/14	2-2x	6-10d	1220#
16 TJ1 560	ITS3.56/16	2-2x	6-10d	1220#

NAILER ATTACHMENT TO STEEL BEAM SIMPSON SDS lx @12"o.c.(2.5" MIN PENETRATION) U.N.O.



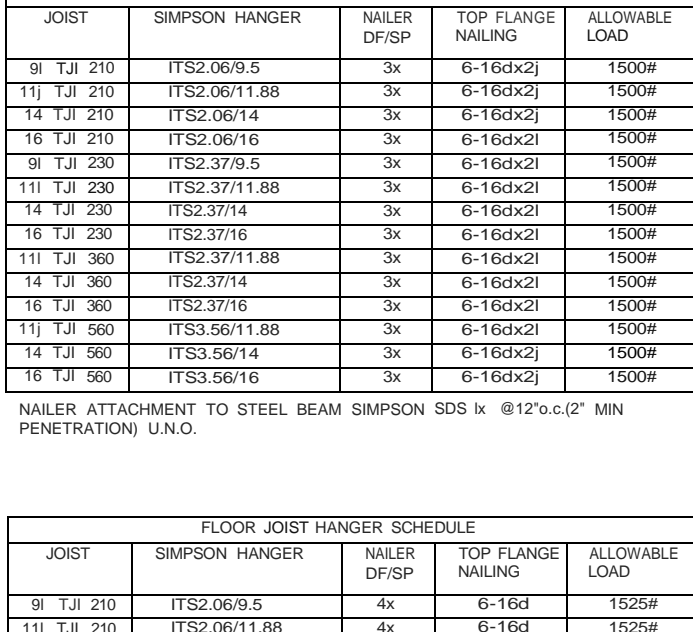
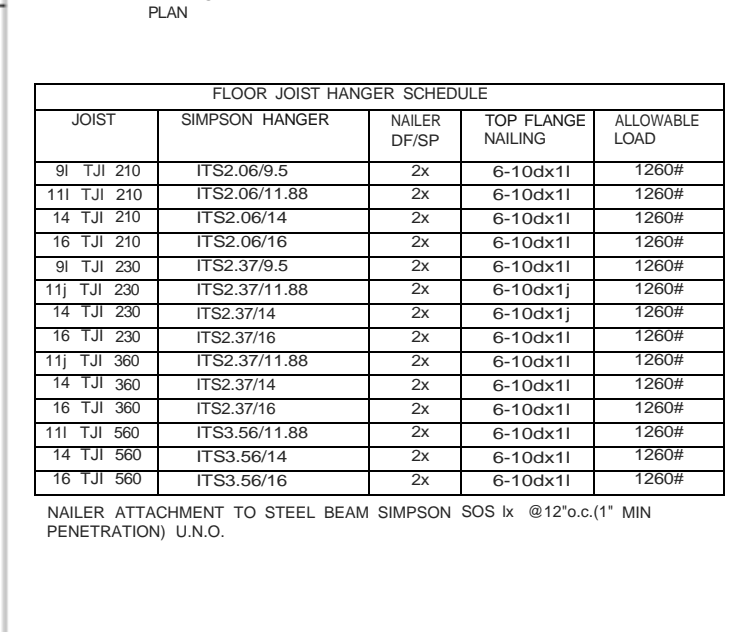
DETAIL scale  $\frac{3}{4}"=1'-0"$  6



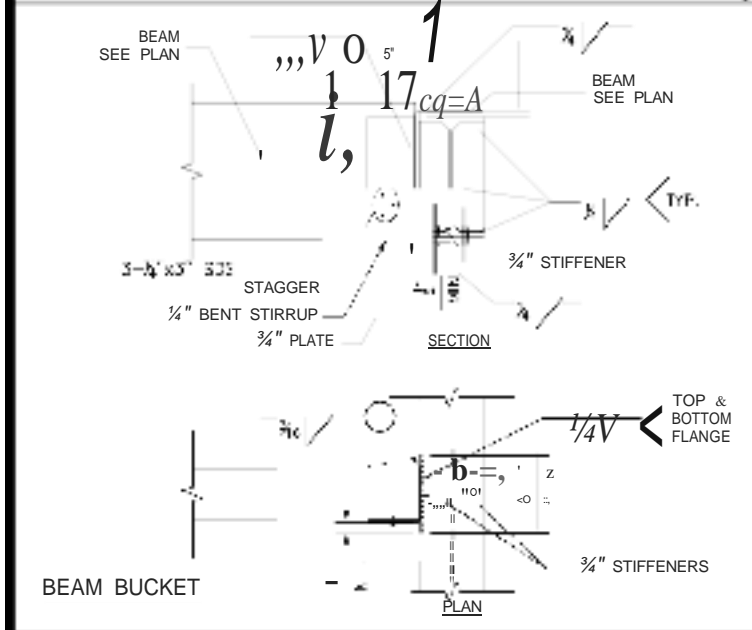
Downloaded from <http://www.jstor.org/> on Tue, 20 Jun 2016 12:00:11 UTC

Diagram illustrating the connection of a floor joist to a beam face hanger. The diagram shows a cross-section of the beam with a hanger attached to its face. The hanger is labeled "FLOOR JOIST" and "BEAM". The beam is labeled "BEAM". The hanger is labeled "FACE HANGER". The diagram is labeled "SCHEDULE".

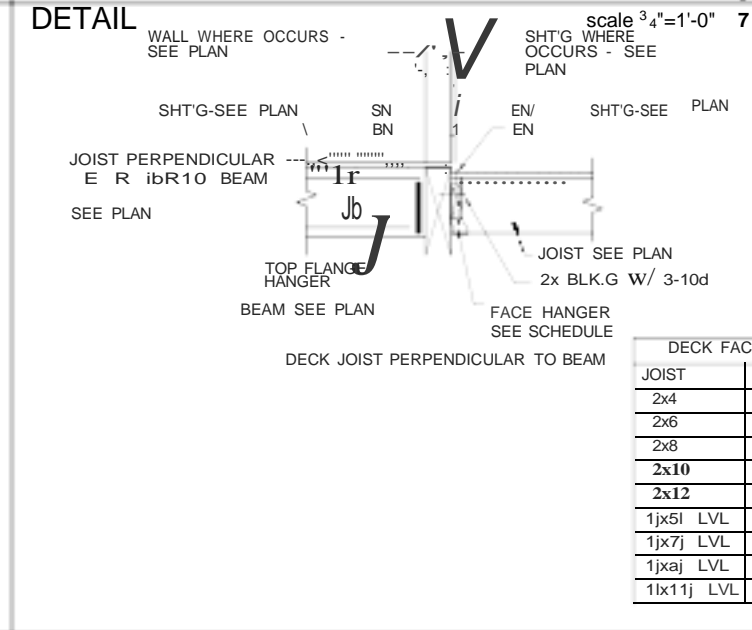
DETAIL



14 TJI 210	ITS2.06/14	4x	6-16d	1525#
16 TJI 210	ITS2.06/16	4x	6-16d	1525#

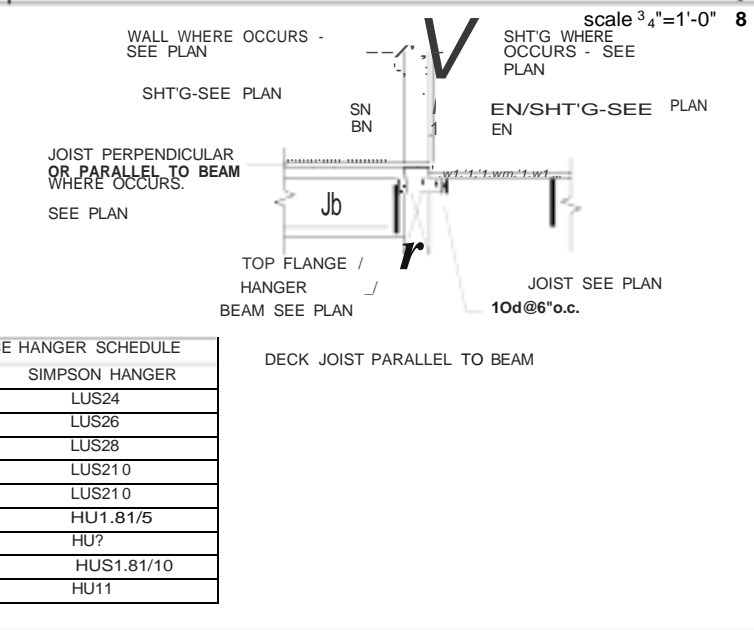


DETAIL scale  $\frac{3}{4}" = 1'-0"$  11

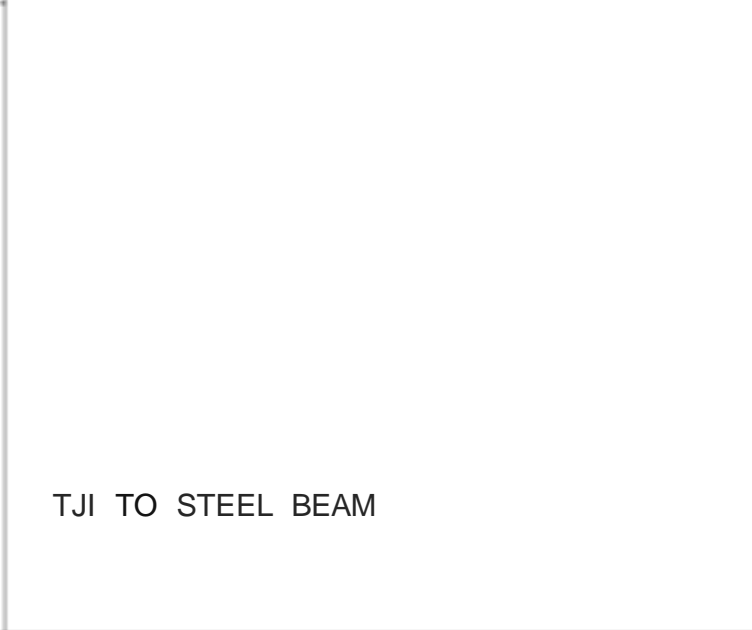


DETAIL 2/

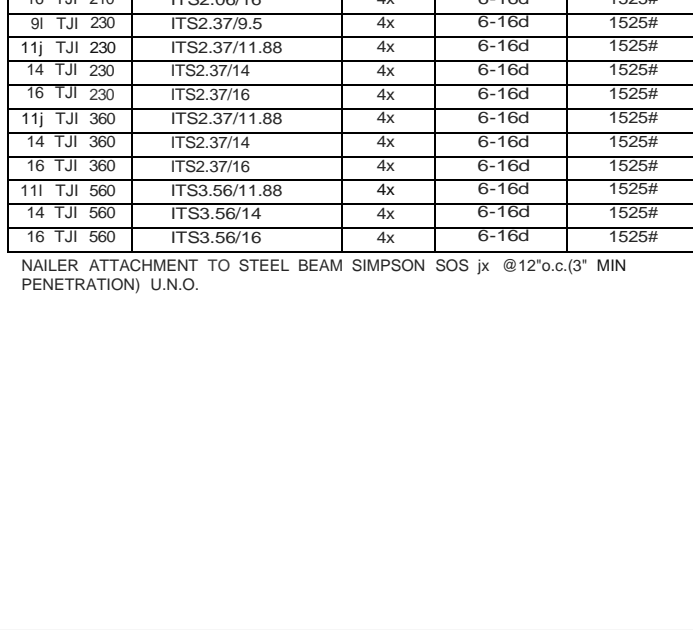
DECK FACE HANGER SCHEDULE	
JOIST	SIMPSON HANGER
2x4	LUS24
2x6	LUS26
2x8	LUS28
<b>2x10</b>	LUS210
<b>2x12</b>	LUS210
1jx5l LVL	HU1.81/5
1jx7j LVL	HU?
1jxaj LVL	HUS1.81/10
1x11j LVL	HU11



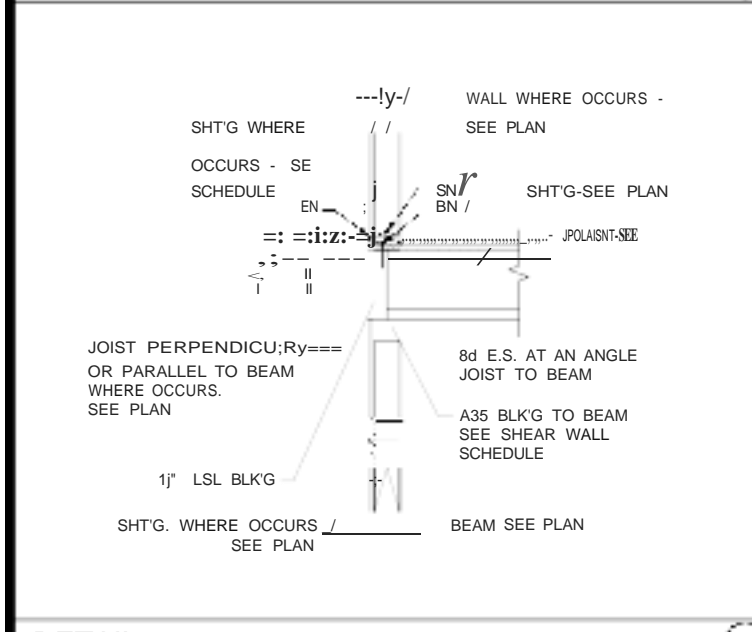
scale  $\frac{3}{4}"=1'-0"$  13



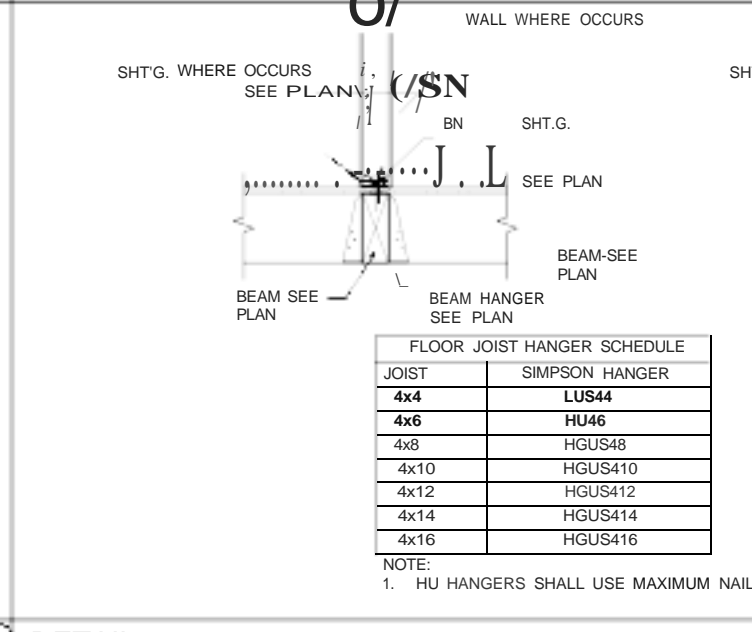
DETAIL



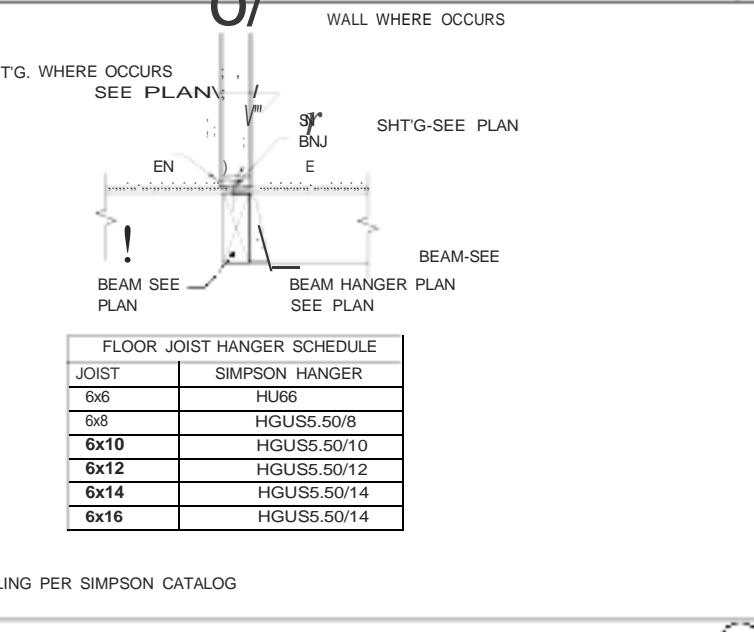
scale  $\frac{3}{4}"=1'-0"$



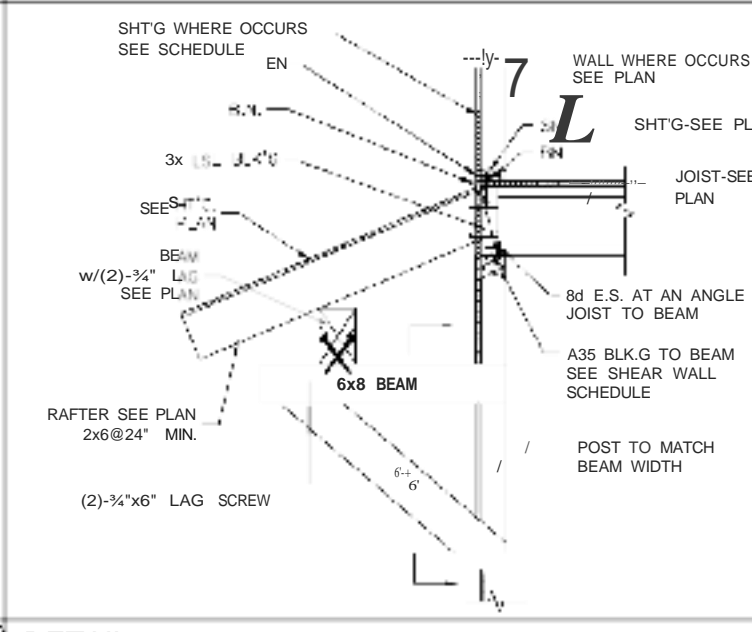
DETAIL scale  $\frac{3}{4}"=1'-0"$  16



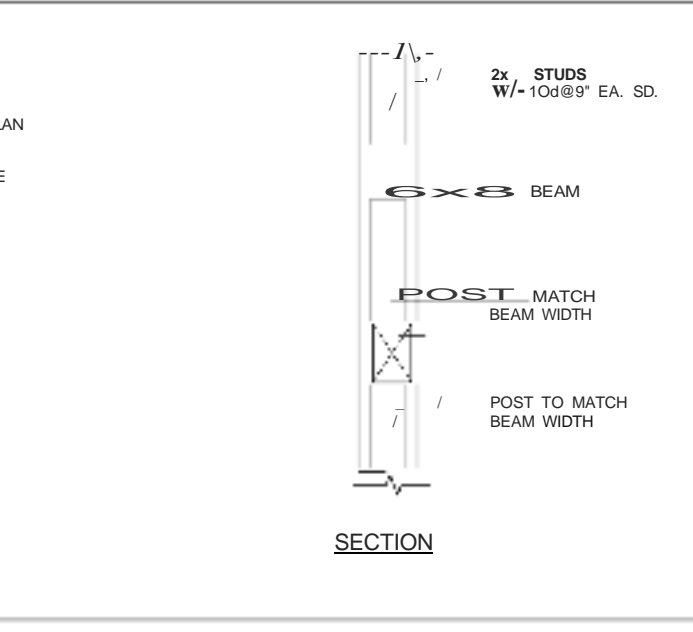
5. DETAIL



scale  $\frac{3}{4}"=1'-0"$  18

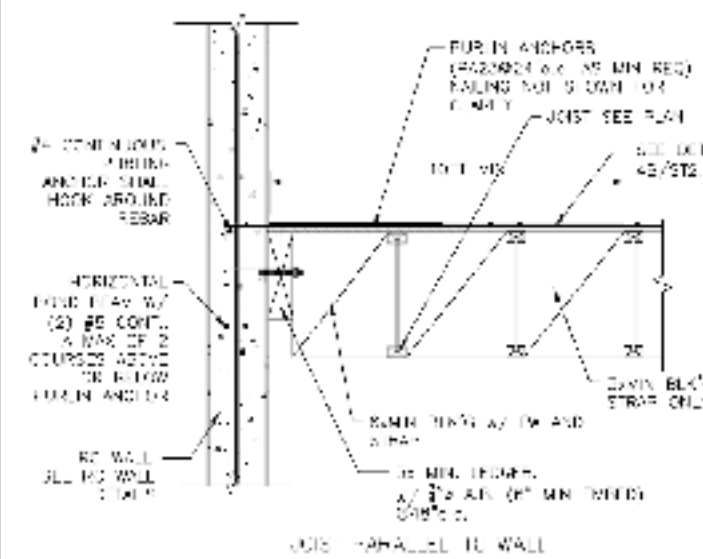


DETAIL



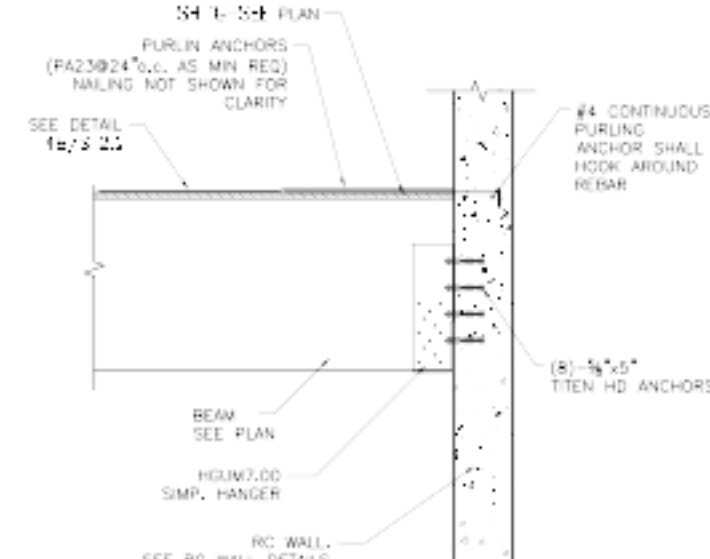
scale  $3_4''=1'-0$





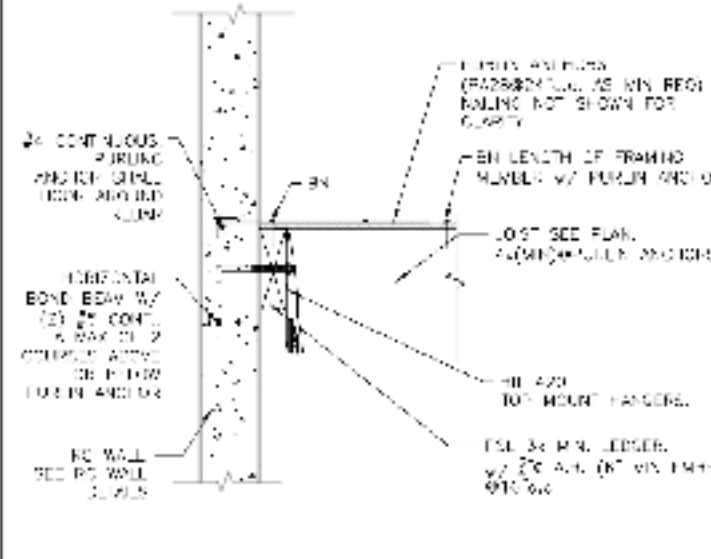
DETAIL

scale  $\frac{3}{4}"=1'-0"$  ( 1



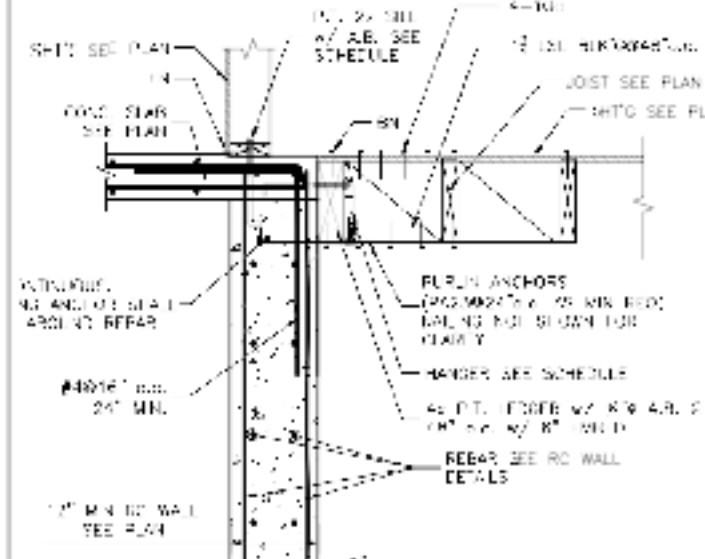
## DETAIL

scale  $\frac{3}{4}"=1'-0"$  (2



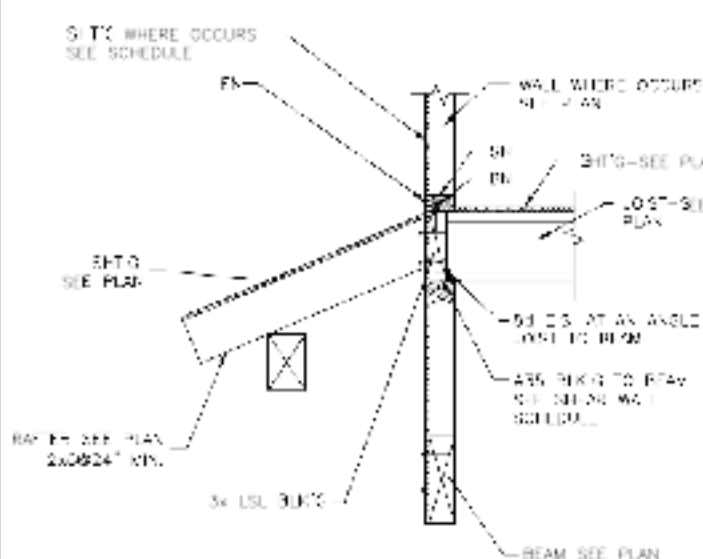
DETAIL

scale  $\frac{3}{4}"=1'-0"$  (



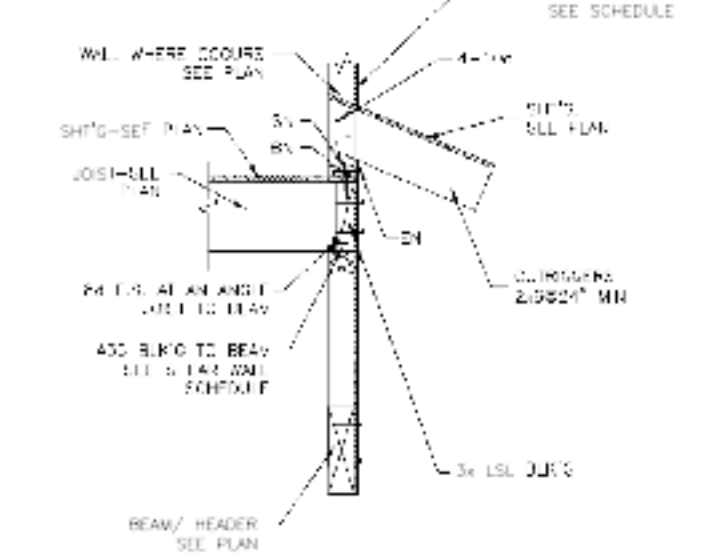
3) DETAIL

scale  $\frac{3}{4}"=1'-0"$



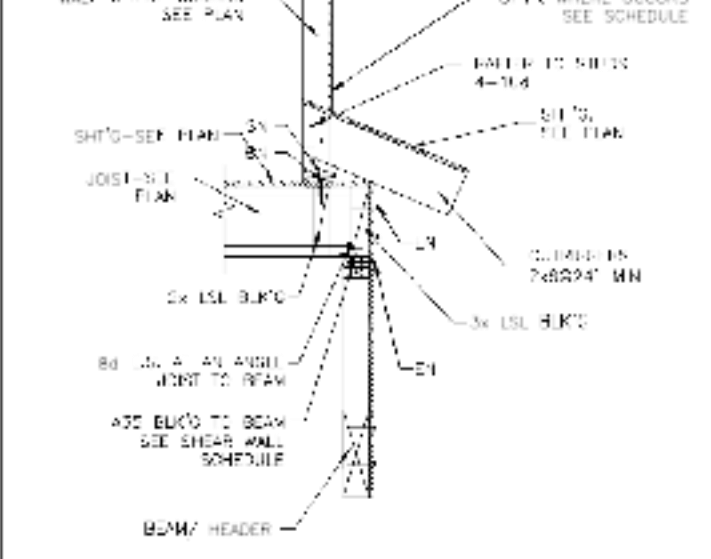
## DETAIL

scale  $\frac{3}{4}"=1'-0"$  (11



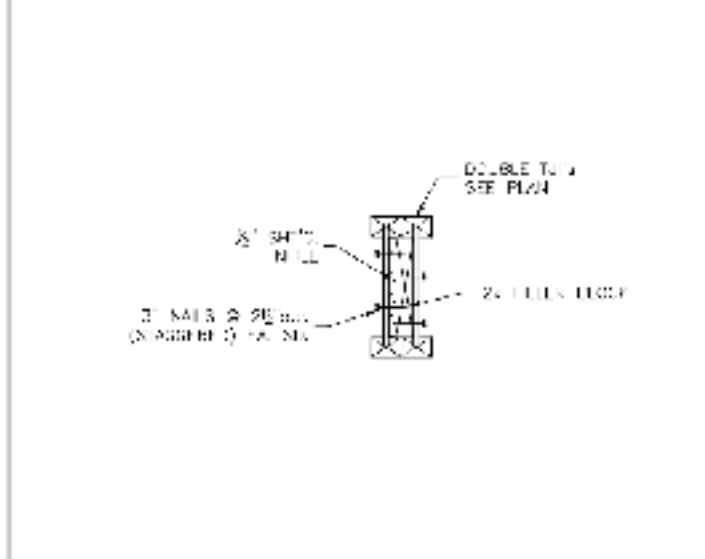
--	--

scale  $\frac{3}{4}"=1'-0"$  (12



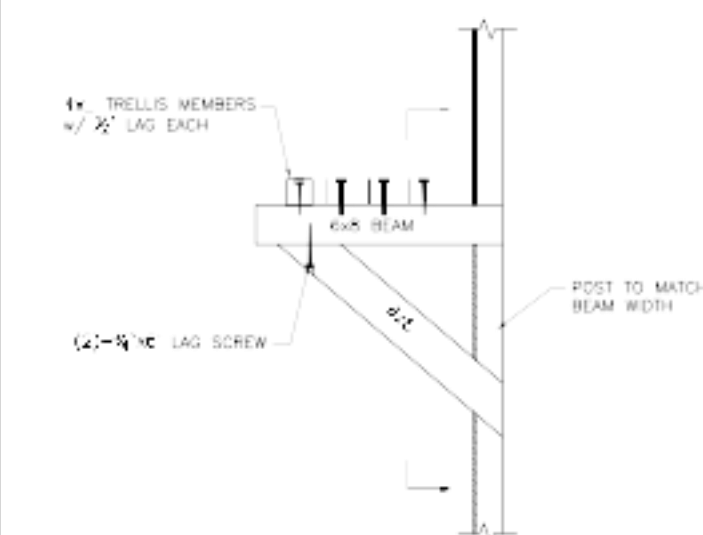
DETAIL

scale  $\frac{3}{4}"=1'-0"$  (1

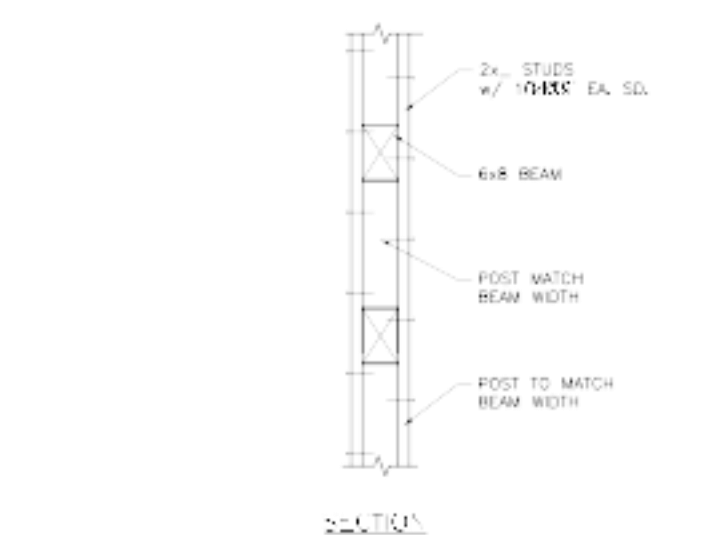


### 3) DETAIL

scale  $\frac{3}{4}"=1'-0"$



## DETAIL

scale  $\frac{3}{4}"=1'-0"$  (17)

---

scale  $\frac{3}{4}"=1'-0"$  (17)

DETAIL

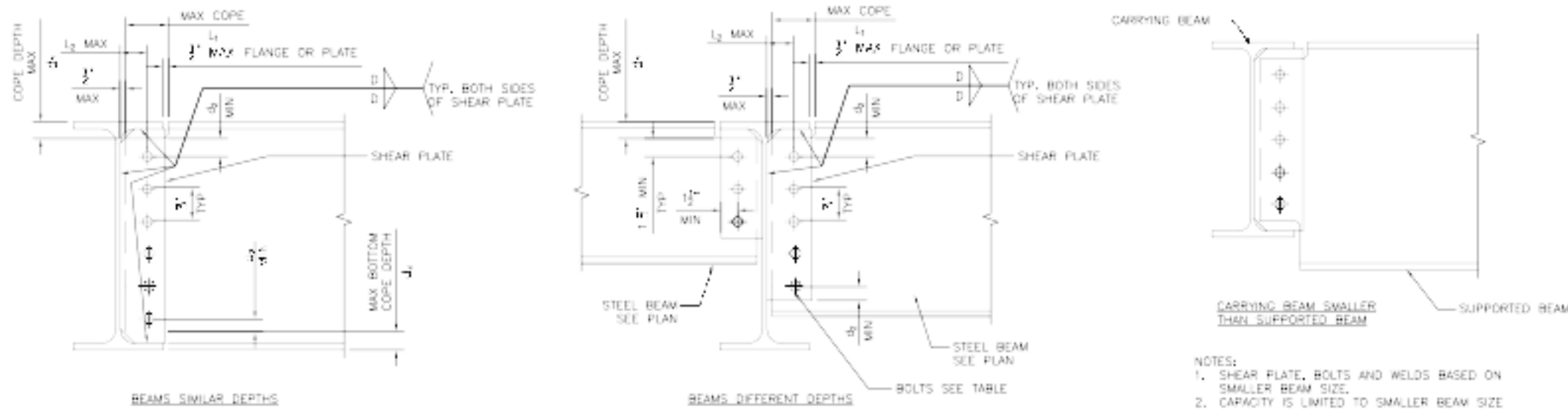
scale  $\frac{3}{4}"=1'-0"$  (1

## 8 DETAIL

scale  $\frac{3}{4}"=1'-0"$  (1)

19 DETAIL

scale  $\frac{3}{4}"=1'-0"$  (20)



BEAM SIZE	BOLTS	SHEAR PLATE THICKNESS $t$	MIN EDGE DISTANCE $d_e$	MAX COPE LENGTH $L_1$	$L_2$ MAX	MAX TOP COPE DEPTH $d_t$	MAX BOTTOM COPE DEPTH $d_b$	FILLET WELD D U.S. OF PLATE	CAPACITY (kips)
W8x10 - W8x15	2-#5 A325	0.275	1.25	2	2	1.2	1.2	0.1875	9
W8x18 - W8x28	2-#5 A325	0.275	1.25	2	2	1.2	1.2	0.1875	12
W8x31 - W8x HEAVY	2-#5 A325	0.275	1.25	2	2	1.2	1.2	0.1875	15
W10x12 - W10x30	3-#5 A325	0.275	1.52	4	2	1.5	1.5	0.1875	15
W10x33 - W10x HEAVY	3-#5 A325	0.275	1.52	4	2	1.5	1.5	0.1875	25
W12x14 & W12x22	3-#5 A325	0.275	1.52	4	2	1.2	1.2	0.1875	25
W12x26 - W12x35	3-#5 A325	0.275	1.52	4	2	1.2	1.2	0.1875	30
W12x40 - W12x HEAVY	3-#5 A325	0.275	1.52	4	2	1.2	1.2	0.1875	35
W14x22 - W14x38	3-#5 A325	0.275	1.52	4	2	1.5	1.5	0.1875	40
W14x43 - W14x HEAVY	3-#5 A325	0.275	1.52	4	2	1.5	1.5	0.1875	45
W16x26 - W16x31	4-#5 A325	0.275	1.52	5	2	1.2	1.2	0.1875	50
W16x36 - W16x HEAVY	4-#5 A325	0.275	1.52	5	2	1.2	1.2	0.1875	65
W18x36 - W18x46	5-#5 A325	0.275	1.52	5	2	1.5	1.5	0.25	80
W18x50 - W18x HEAVY	5-#5 A325	0.275	1.52	5	2	1.5	1.5	0.25	80
W21x44 - W21x93	6-#5 A325	0.275	1.52	6	2	1.5	1.5	0.25	115
W21x101 - W21x HEAVY	6-#5 A325	0.275	1.52	6	2	1.5	1.5	0.25	125
W24x	6-#5 A325	0.275	1.52	6	2	2.0	2.0	0.25	130
W27x	7-#5 A325	0.275	1.52	7	2	2.0	2.0	0.25	150
W30x	8-#5 A325	0.275	1.52	8	2	2.0	2.0	0.25	170
W33x	9-#5 A325	0.275	1.52	8	2	2.0	2.0	0.25	195
W36x	12-#5 A490	0.275	1.52	8	2	2.0	2.0	0.25	215

NOTES:  
1. SHEAR PLATE SHALL BE ASTM A36

### STEEL BEAM TO BEAM CONNECTION DETAIL

