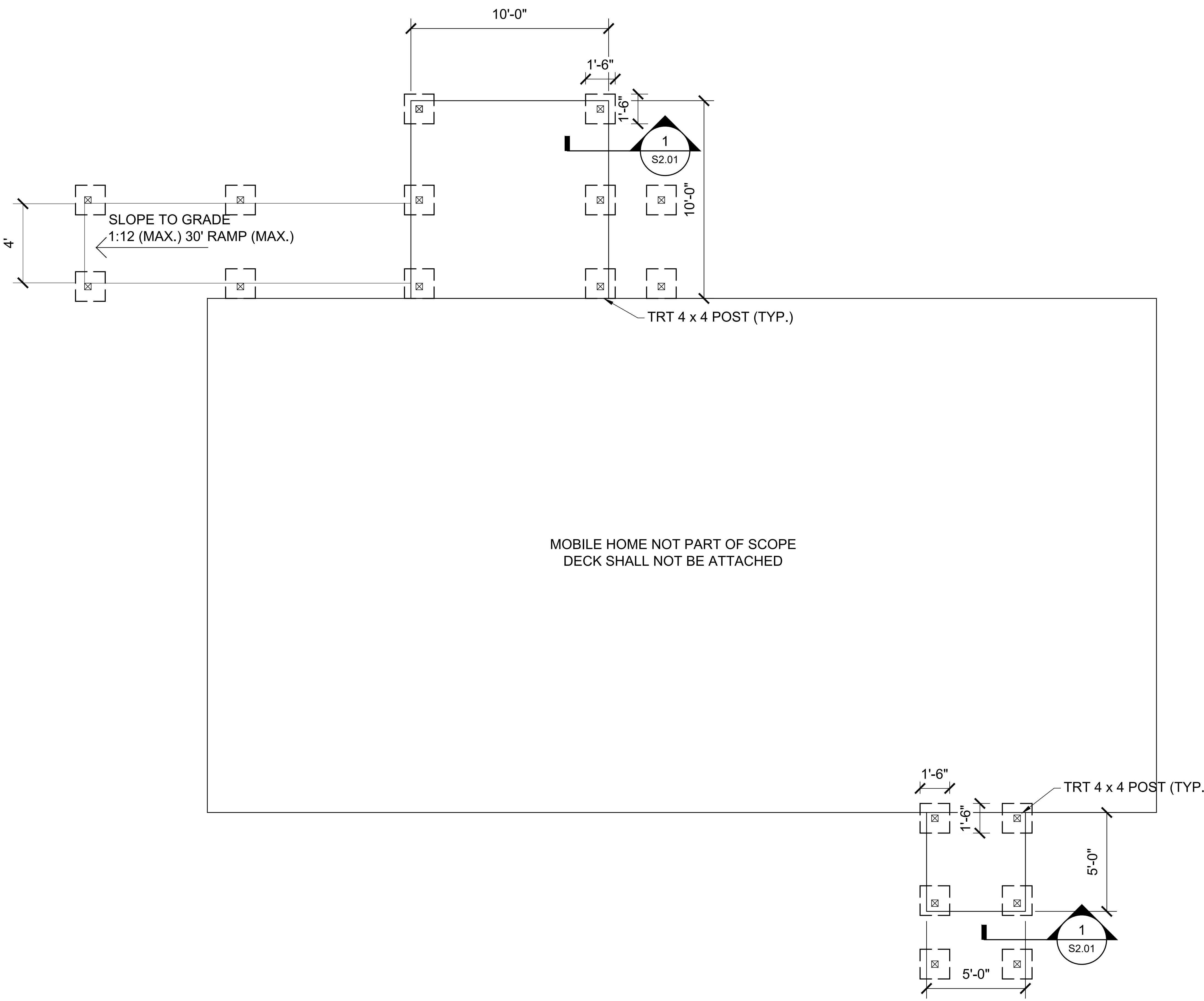

FOUNDATION PLAN

SCALE: NTS

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MASTER PLAN

PREPARED FOR:
TIMBERLINE CONSTRUCTION

FOUNDATION PLAN

ADDITIONS, SUBMITTALS, & REVISIONS

REV	DATE	DESCRIPTION	BY	REV	DATE	DESCRIPTION	BY
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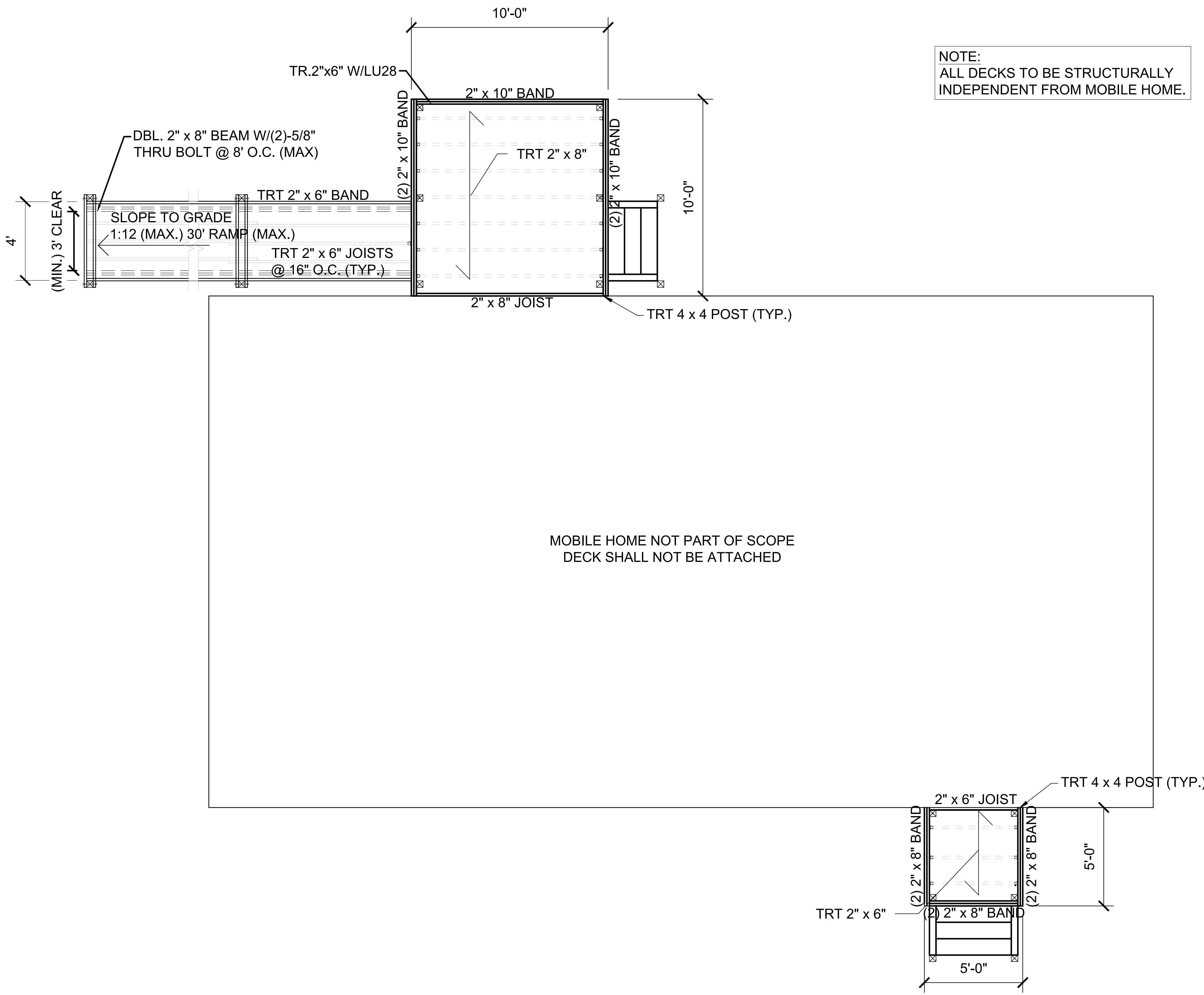
PROJECT #: 221252

S1.01



NOTE:
ALL DECKS TO BE STRUCTURALLY INDEPENDENT FROM MOBILE HOME.

FRAMING PLAN

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PROJECT #: 221252

S1.02

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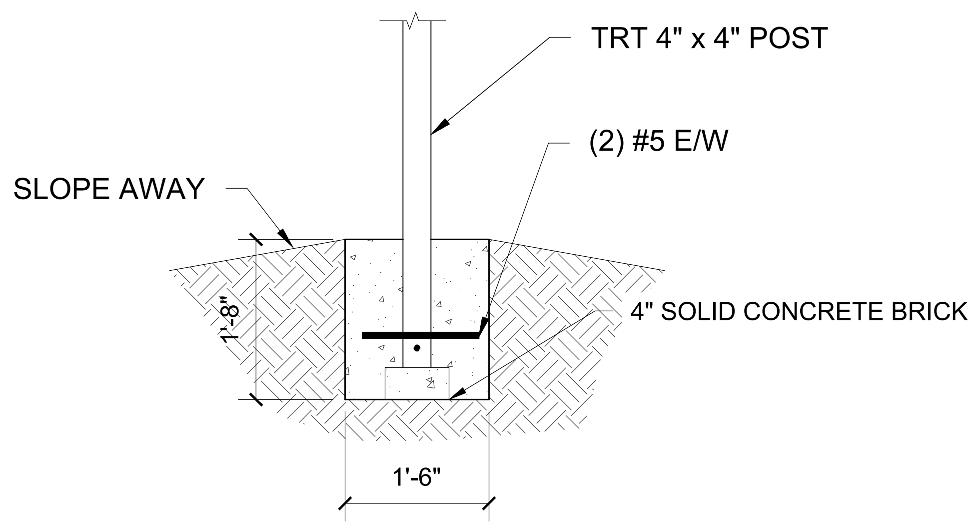
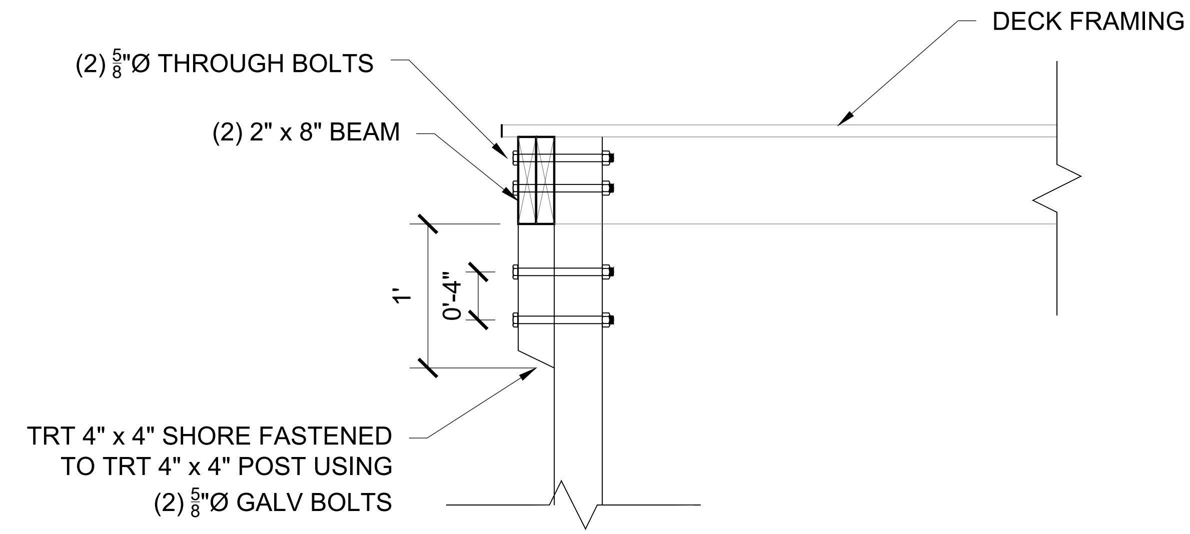
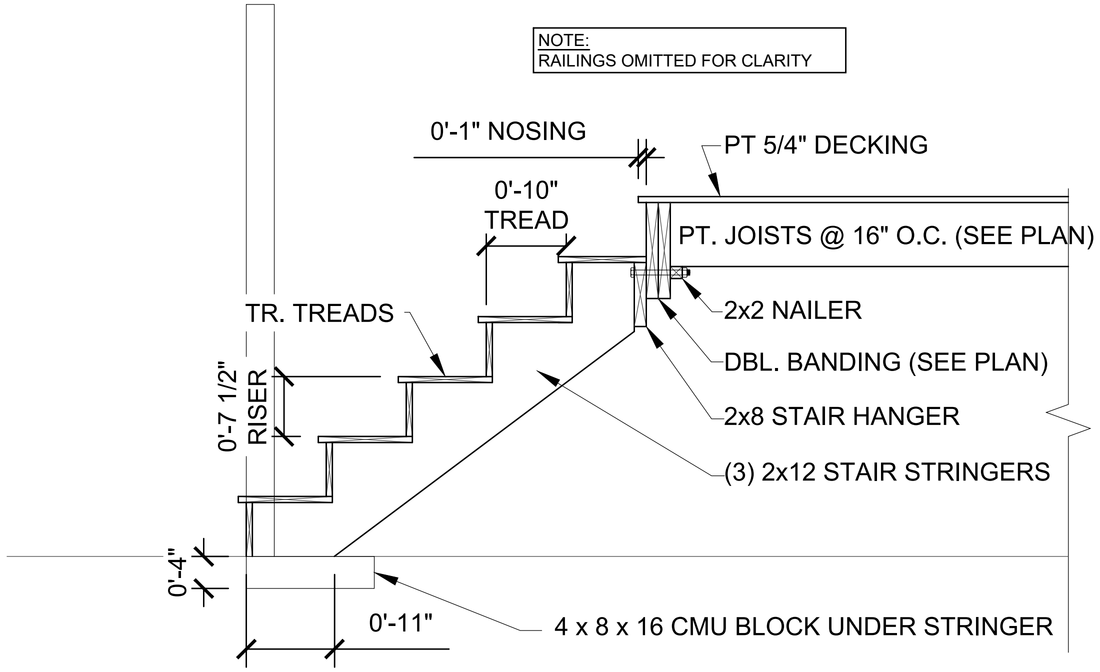


1 S2.01 TYPICAL FOUNDATION SECTION
SCALE: 1/2" = 1'-0"



2 S2.01 TYPICAL DECK SECTION
SCALE: 3/4" = 1'-0"



STAIR SECTION

3 S2.01 TYPICAL STAIR SECTION
SCALE: 1/2" = 1'-0"

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S2.01

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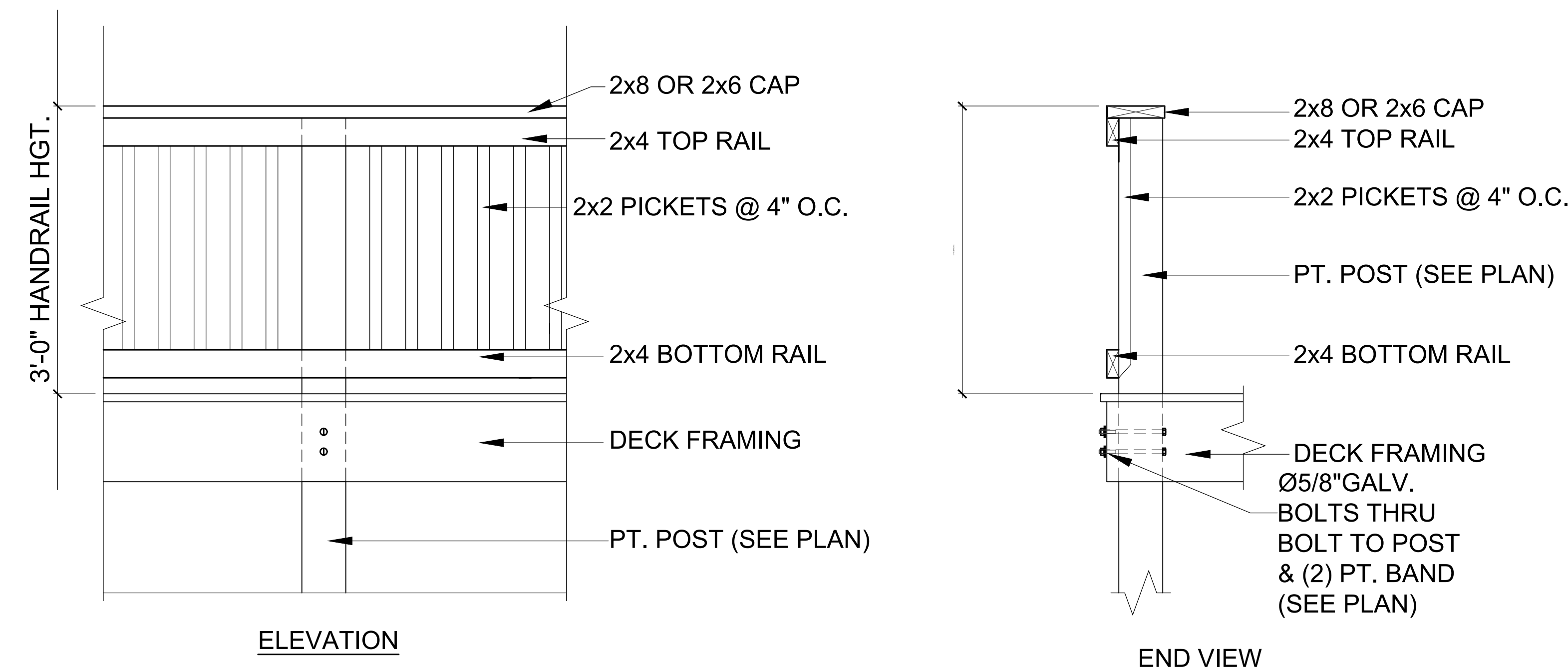
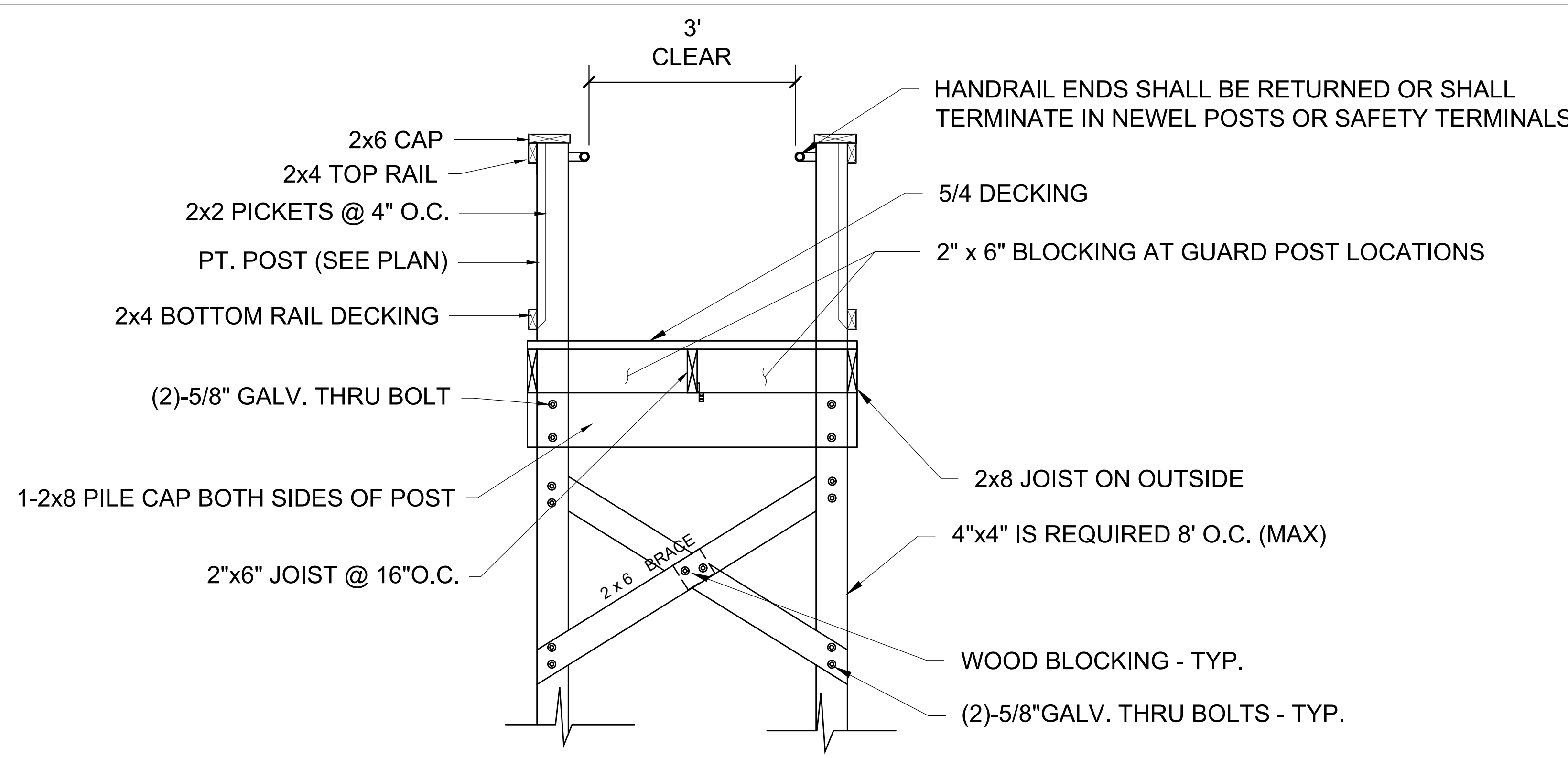


1 S2.02 **TYPICAL RAILING SECTIONS**
SCALE: 1/2" = 1'-0"

NOTE:
1) ALL LUMBER SHALL BE PRESSURE TREATED
2) BLOCKING SHALL BE INSTALLED BETWEEN BAYS AT GUARD POST LOCATION WHERE JOISTS RUN PARALLEL WITH EDGE.



NOTE: CROSS BRACE ONLY REQUIRED IF RAMP IS 4' OR MORE ABOVE GRADE

2 S2.02 **TYPICAL RAMP SECTIONS**
SCALE: 3/8" = 1'-0"

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PROJECT #: 221252

S2.02

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STRUCTURAL NOTES

GOVERNING CODE: **2018 INTERNATIONAL RESIDENTIAL CODE WITH SOUTH CAROLINA AMENDMENTS**
LOADS ARE IN ACCORDANCE WITH ASCE 7-16

1. **RISK CATEGORY:** II
 1.1. SNOW IMPORTANCE FACTOR (I_S) 1.00
 1.2. ICE IMPORTANCE FACTOR - THICKNESS (I_i) 1.00
 1.3. ICE IMPORTANCE FACTOR - WIND (I_w) 1.00
 1.4. SEISMIC IMPORTANCE FACTOR (I_e) 1.00

2. **DEAD LOADS** *PER MATERIAL WEIGHTS*

3. **LIVE LOADS**
 3.1. ROOF LIVE LOAD 20 PSF
 3.2. FLOOR LIVE LOADS 40 PSF

4. **SNOW LOADS**
 4.1. GROUND SNOW LOAD (P_g) 10 PSF
 4.2. SNOW EXPOSURE FACTOR (C_e) 0.9
 4.3. THERMAL FACTOR (C_t) 1.2
 4.4. FLAT ROOF SNOW LOAD (P_f) 10 PSF
 4.5. SLOPED ROOF SNOW LOAD (P_s) 10 PSF

5. **WIND LOADS**
 5.1. BASIC WIND SPEEDS
 5.1.1. V_{ULT}: 150 MPH
 5.1.2. V_{ASD}: 116 MPH
 5.2. WIND EXPOSURE: EXPOSURE B
 5.3. MEAN ROOF HEIGHT: < 30 FT
 5.4. MAIN WIND FORCE RESISTING PRESSURES (PSF)
 ROOF: -51.0 *(MAX UPLIFT)* & +18.5/-36.4 *(OVERTURNING)*
 WALL: +36.6 *(NET WINDWARD & LEEWARD)*

 5.5. COMPONENT & CLADDING PRESSURES (PSF)
 ROOF: +22.2/-61.0 *(ZONE 3)* & +22.2/-24.0 *(ZONE 1)*
 WALL: +24.0/-26.0 *(ZONE 4)* & +24.3/-32.0 *(ZONE 5)*

 5.6. INTERNAL PRESSURE COEFFICIENTS (GC_{pi}):
 5.6.1. ENCLOSED STRUCTURE: ± 0.18
 5.6.2. PARTIALLY ENCLOSED STRUCTURE: ± 0.55
 5.6.3. OPEN STRUCTURE: ± 0.00

6. **SEISMIC LOAD INFORMATION**
 6.1. BASIC PARAMETERS
 6.1.1. MCE_R GROUND MOTION (S_S) 0.574
 6.1.2. MCE_R GROUND MOTION (S_1) 0.201
 6.1.3. SEISMIC DESIGN VALUE @ 0.2s SA (S_{DS}) 0.513
 6.1.4. SEISMIC DESIGN VALUE @ 0.1s SA (S_{D1}) 0.267
 6.2. SITE CLASS: D *(Stiff Soils)*
 6.3. SEISMIC DESIGN CATEGORY: SDC D
 6.4. BASIC FORCE RESISTING SYSTEM:

 LIGHT FRAMED WALLS W/ WOOD SHEAR PANELS

 6.4.1. RESPONSE MODIFICATION FACTOR (R): 6.5
 6.4.2. SEISMIC RESPONSE COEFFICIENT (C_s): 0.08
 $C_S = S_{DS} / (R / I_e)$

 6.5. DESIGN BASE SHEAR: 0.08 * W
 6.6. ANALYSIS PROCEDURE USED:
 EQUIVALENT LATERAL FORCE

7. **GEOTECHNICAL INFORMATION**
 7.1. SOIL BEARING CAPACITY: 2,000 PSF *(PER TABLE R401.4.1)*

8. **FLOOD DESIGN DATA**
 8.1. FLOOD ZONE X-ZONE

9. **RAIN LOAD**
 9.1. RAIN INTENSITY - 100 YEAR, 1 HOUR (i): 4.00 IN/HR

A. GENERAL

1. THE STRUCTURE IS DESIGNED TO BE SELF-SUPPORTING AND STABLE AFTER THE BUILDING IS FULLY COMPLETED. IT IS SOLELY THE CONTRACTOR'S RESPONSIBILITY TO DETERMINE ERECTION PROCEDURES AND SEQUENCE, AND TO ENSURE THE STABILITY OF THE BUILDING AND ITS COMPONENT PARTS, AND THE ADEQUACY OF TEMPORARY OR INCOMPLETE CONNECTIONS, DURING ERECTION. THIS INCLUDES THE ADDITION OF ANY SHORING, SHEETING, TEMPORARY, BRACING OR TIEDOWNS THAT MIGHT BE NECESSARY. SUCH MATERIAL IS NOT SHOWN ON THE DRAWINGS. IF APPLIED, THEY SHALL BE REMOVED AS CONDITIONS PERMIT. THE ENGINEER TAKES NO RESPONSIBILITY FOR, CONSTRUCTION MEANS AND METHODS OR JOB SITE SAFETY DURING CONSTRUCTION. PROCESSING AND/OR APPROVING SUBMITTALS MADE BY THE CONTRACTOR WHICH MAY CONTAIN INFORMATION RELATED TO CONSTRUCTION METHODS OR SAFETY ISSUES, OR PARTICIPATION IN MEETINGS WHERE SUCH ISSUES MIGHT BE DISCUSSED, SHALL NOT BE CONSTRUED AS VOLUNTARY ASSUMPTION BY THE ENGINEER OF ANY RESPONSIBILITY FOR SAFETY PROCEDURES.
2. IT IS SOLELY THE RESPONSIBILITY OF EACH CONTRACTOR TO FOLLOW ALL APPLICABLE SAFETY CODES AND REGULATIONS DURING ALL PHASES OF CONSTRUCTION. THE ENGINEER DOES NOT SUPERVISE, CONSTRUCTION UNLESS CONTRACTED TO DO SO. THE CONTRACTOR IS RESPONSIBLE FOR LIMITING THE AMOUNT OF CONSTRUCTION LOAD IMPOSED UPON STRUCTURAL FRAMING. CONSTRUCTION LOADS SHALL NOT EXCEED THE DESIGN CAPACITY OF THE FRAMING AT THE TIME THE LOADS ARE IMPOSED.
3. EQUIPMENT FRAMING LOADS, OPENINGS AND STRUCTURE IN ANY WAY RELATED TO HVAC, PLUMBING, OR ELECTRICAL REQUIREMENTS ARE SHOWN FOR BIDDING PURPOSES ONLY. CONTRACTOR SHALL COORDINATE THIS INFORMATION WITH THE INVOLVED TRADES BEFORE PROCEEDING WITH SUCH PORTION OF THE WORK. EXCESS COST RELATED TO VARIATION IN THESE REQUIREMENTS TO BE BORNE BY THE APPROPRIATE CONTRACTOR.
4. SHOULD ANY OF THE DETAILED INSTRUCTIONS SHOWN ON THE PLANS CONFLICT WITH THESE STRUCTURAL NOTES, THE SPECIFICATIONS, OR WITH EACH OTHER, THE STRICTEST PROVISION SHALL GOVERN. DO NOT SCALE THESE DRAWINGS. USE DIMENSIONS.
5. THE CONTRACTOR SHALL VERIFY ALL DIMENSIONS WITH ARCHITECTURAL FLOOR PLANS PRIOR TO CONSTRUCTION. ARCHITECTURAL FLOOR PLANS SHALL GOVERN DIMENSIONS, AND ANY DISCREPANCIES SHALL BE REPORTED TO THE ENGINEER IMMEDIATELY. DO NOT SCALE DRAWINGS.
6. FIRST FLOOR WINDOWS AND DOORS SHALL HAVE A RATING OF **DP55**. GARAGE DOORS TO HAVE A RATING OF **DP50**. SECOND FLOOR WINDOWS SHALL HAVE A RATING OF **DP55**.
7. NOTE ON TREATED LUMBER CONNECTIONS - ALL NAILS, BOLTS, SCREWS, AND CONNECTORS THAT MAY COME INTO CONTACT WITH TREATED LUMBER WILL BE HOT DIPPED GALVANIZED (HDG), STAINLESS STEEL (SS), OR OTHER MATERIALS APPROVED BY THE MANUFACTURE TO MINIMIZE CORROSION CAUSED BY ACQ TREATMENT CHEMICALS.
8. SOIL LOAD BEARING CAPACITY FOR SANDS, SILTY SANDS AND CLAYEY SAND ARE PRESUMED TO BE 2,000 POUNDS PER SQUARE FOOT FOR DESIGN PURPOSES. SOIL LOAD BEARING CAPACITY FOR CLAYS AND SILTS (SL, ML, MH, AND CH) ARE PRESUMED TO BE 1,500 POUNDS PER SQUARE FOOT FOR DESIGN PURPOSES.
9. SHOULD A CONFLICT OCCUR BETWEEN THESE DRAWINGS AND THE AFOREMENTIONED CODE REFERENCES, THE MORE STRINGENT SHALL GOVERN.

B. REINFORCED CONCRETE

1. MATERIALS:
 1.a. SPECIFICATIONS: IN GENERAL, COMPLY WITH ACI 318-14 "SPECIFICATIONS FOR STRUCTURAL CONCRETE"
 1.b. STRUCTURAL CONCRETE:

LOCATION	F'c (PSI)
FOOTINGS	3,000
MONOLITHIC SLABS ON GRADE & ALL INTERIOR CONCRETE NOT OTHERWISE IDENTIFIED	3,500
RAISED STEMWALL SLABS & CONCRETE ON-GRADE, PIERS	3,000
BACKFILL BELOW FOOTINGS (MUD MAT)	2,000
ALL EXTERIOR CONCRETE NOT OTHERWISE IDENTIFIED	3,000

 1.c. ALL DEFORMED REINFORCING BARS: Fy = 60,000 ASTM A-615 GRADE 60
 1.d. MIXES: ALL CONCRETE MIXES SHALL BE DESIGNED BY THE SUPPLIER TO MEET THE REQUIREMENTS SET FORTH HEREIN.
 1.d.1. SLUMP: MAXIMUM ALLOWABLE SLUMP FOR CONCRETE SHALL BE 4", UNLESS OTHERWISE NOTED OR APPROVED. IF HIGHER SLUMP IS DESIRED TO INCREASE WORKABILITY, CONTRACTOR SHALL CONSULT WITH CONCRETE SUPPLIER ABOUT USING A CONCRETE ADDITIVE THAT WILL INCREASE SLUMP WITHOUT INCREASING WATER/CEMENT RATIO OF THE CONCRETE. THE CONTRACTOR SHALL VERIFY THAT ANY CONCRETE ADDITIVES WILL NOT HAVE ANY DETRIMENTAL EFFECTS ON EMBEDDED ITEMS, FINISHES INDICATED ON PLANS, OR LIKELY FUTURE FINISHES.
 1.e. FINISHING: FINISHING OF CONCRETE SHALL BE IN ACCORDANCE WITH ACI 301 (LATEST EDITION).
 1.e.1. CURING: BEGINNING IMMEDIATELY AFTER PLACEMENT, CONCRETE SHALL BE PROTECTED FROM PREMATURE DRYING, EXCESSIVELY HOT OR COLD TEMPERATURES, AND MECHANICAL INJURY AND SHALL BE MAINTAINED WITH MINIMAL MOISTURE LOSS AT RELATIVELY CONSTANT TEMPERATURE FOR THE PERIOD NECESSARY FOR THE HYDRATION OF THE CEMENT AND HARDENING OF THE CONCRETE. THE MATERIALS AND METHODS OF CURING SHALL CONFORM TO ACI 301.
2. FIELD MANUAL: PROVIDE AT LEAST ONE COPY OF THE ACI FIELD REFERENCE MANUAL, SP-15, IN THE FIELD OFFICE AT ALL TIMES.
3. MISCELLANEOUS:
 3.a. BENT BARS, IF REQUIRED, SHALL BE BENT PER MANUFACTURER RECOMMENDATIONS, UNLESS OTHERWISE APPROVED.
 3.b. PROVIDE SUPPORTS AS REQUIRED TO MAINTAIN ALIGNMENT OF SCHEDULED REINFORCING.
 3.c. GROUT UNDER COLUMN BASE PLATES SHALL BE NON-SHRINKING TYPE. THE USE OF LEVELING PLATES AT COLUMN BASES IS PROHIBITED. GROUT BELOW BEARING PLATES, SETTING PLATES AND COLUMN BASE PLATES IS TO BE INSTALLED ONLY AFTER THE STEEL IS PLUMBED.
4. SLABS:
 4.a. CONCRETE SLABS ON GRADE SHALL BE CONSTRUCTED IN ACCORDANCE WITH ACI 302.IR-96 "GUIDE FOR CONCRETE".
 4.b. CONTROL JOINTS SHALL BE SPACED IN INTERIOR SLABS ON GRADE AT A MAXIMUM OF 20 FEET ON CENTER AND IN EXTERIOR SLABS ON GRADE AT A MAXIMUM OF 10 FEET ON CENTER, UNLESS OTHERWISE NOTED.
 4.c. CONTROL JOINTS SHALL BE PRODUCED USING CONVENTIONAL PROCESSES WITHIN 4 TO 12 HOURS AFTER THE SLAB HAS BEEN FINISHED. REINFORCING STEEL SHALL NOT EXTEND THROUGH THE CONTROL JOINT.
 4.d. CONSTRUCTION JOINTS PERMITTED ONLY WHERE SHOWN OR AS APPROVED BY THE STRUCTURAL ENGINEER. CONSTRUCTION JOINTS ARE TO BE KEYED. KEYWAYS SHALL BE 1-1/2 INCHES DEEP x 1/3 MEMBER THICKNESS.
 4.e. PROVIDE 6 MIL POLYETHYLENE VAPOR BARRIER BETWEEN SUBGRADE AND CONCRETE SLAB.
 4.f. TREAT SOIL FOR TERMITES PRIOR TO PLACEMENT OF CONCRETE.
 4.g. PREPARE SITE BY REMOVING ORGANIC/EXPANSIVE SOILS AND COMPACTING TO 95% PROCTOR DRY DENSITY.
 4.h. SLAB FINISHES:
 4.h.1. ALL OFFICE SPACES, RETAIL, RESIDENTIAL AND SIMILAR SLABS SHALL HAVE MACHINE FINISH WITH $\frac{1}{8}$" PER 10'-0" TOLERANCE.
 4.h.2. ALL EXTERIOR, WET SURFACE, DRIVEWAYS, SIDEWALKS AND SIMILAR SLABS SHALL BE FINISHED WITH ROUGH NON-SKID SURFACE (BROOM FINISH). BRUSH LINES IN THE FINISH SHALL BE PARALLEL TO THE DIRECTION OF SLOPE.
 4.i. THE CONCRETE SLAB ON GRADE HAS BEEN DESIGNED USING A SUBGRADE MODULUS OF K=250 PCI AND A DESIGN LOADING OF 2,000 PSF. THE STRUCTURAL ENGINEER OF RECORD IS NOT RESPONSIBLE FOR DIFFERENTIAL SETTLEMENT, SLAB CRACKING OR OTHER FUTURE DEFECTS RESULTING FROM UNREPORTED CONDITIONS MITIGATING THE ABOVE ASSUMPTIONS.
 4.j. REINFORCEMENT FOR SLAB ON GRADE SHALL BE PLACED AT A LOCATION BETWEEN THE CENTER AND UPPER THIRD OF THE SLAB.
5. OPENINGS:
 5.a. OPENINGS SHOWN ARE FOR BIDDING PURPOSES ONLY. COORDINATE THEIR EXACT SIZES AND LOCATIONS WITH HVAC, PLUMBING, AND OTHER REQUIREMENTS BEFORE PROCEEDING WITH WORK.
 5.b. IF ANY OPENING NOT SHOWN ON THE PLANS IS REQUIRED, SECURE APPROVAL OF THE STRUCTURAL ENGINEER BEFORE PROCEEDING
 5.c. PROVIDE TWO #5 BARS AROUND ALL SLAB OPENINGS, EXTENDING 2 FEET BEYOND OPENING IN EVER DIRECTION, UNLESS NOTED OTHERWISE. OPENINGS NOT EXCEEDING 16 INCHES x 16 INCHES MAY BE SLEEVED AS REQUIRED BY WORKING THE REINFORCING STEEL AROUND THEM.
6. FOOTINGS AND PIERS:
 6.a. INSTALL DOWELS IN FOOTINGS TO MATCH VERTICAL PIER OR WALL REINFORCING STEEL.
 6.b. PROVIDE CORNER BARS AT FOOTING CORNERS TO MATCH HORIZONTAL REINFORCING. MINIMUM LAP LENGTH WITH HORIZONTAL REINFORCING STEEL = 35 BAR DIAMETERS.
 6.c. BACKFILL AGAINST BOTH SIDES OF WALLS EQUALLY UNTIL THE LOWER ELEVATION IS ATTAINED.
 6.d. PROVIDE MINIMUM 18 INCH THICK LAYER OF GRANULAR BACKFILL FULL HEIGHT OF ALL FOUNDATION WALLS.
 6.e. CAST IN CONTINUOUS DOVE TAIL ANCHOR SLOTS ON VERTICAL SURFACES WHERE MASONRY ABUTS, 16 INCHES ON CENTER FOR PARALLEL MASONRY SURFACES. INSTALL AT CENTERLINE OF MASONRY FOR PERPENDICULAR MASONRY SURFACES.
 6.f. PROVIDE LEAN CONCRETE UNDER FOUNDATIONS FOR ACCIDENTAL OVER EXCAVATION, SOFT SPOTS, AND TRENCHES.
 6.g. VENTILATING FOUNDATION WALL OPENINGS SHALL BE WITHIN 3 FEET OF EACH CORNER OF THE BUILDING. AREA OF OPENINGS SHALL BE NOT LESS THAN 1 SQ. FT. FOR EACH 150 SQ. FT. OF UNDER FLOOR SPACE AREA.
7. SPLICES: UNLESS OTHERWISE NOTED, MINIMUM LAP SPLICE LENGTHS TO BE AS FOLLOWS:

REINFORCING STEEL	LAP LENGTH
VERTICAL BARS (INCLUDING DOWELS)	30 BAR DIAMETERS
HORIZONTAL BARS IN SLABS & FOOTINGS	30 BAR DIAMETERS

8. CONCRETE COVER: UNLESS OTHERWISE NOTED, DETAIL REINFORCING TO PROVIDE CONCRETE COVER AS FOLLOWS:

STEEL LOCATION	CONCRETE COVER
CONCRETE CAST AGAINST AND PERMANENTLY EXPOSED TO EARTH	3 INCHES
CONCRETE EXPOSED TO EARTH OR WEATHER:	
#5 BARS AND SMALLER	1-1/2 INCHES
OTHERS	2 INCHES
PILE CAPS	2-1/2 INCHES

C. MASONRY

1. SPECIFICATIONS: MASONRY CONSTRUCTION AND MATERIALS SHALL CONFORM TO ALL REQUIREMENTS OF "SPECIFICATIONS FOR MASONRY STRUCTURES (ACI 530.1-99/ASCE6-99)," PUBLISHED BY THE AMERICAN CONCRETE INSTITUTE, DETROIT, MICHIGAN, EXCEPT AS MODIFIED BY THE REQUIREMENTS OF THESE CONTRACT DOCUMENTS.
2. MATERIALS:
 2.a. CONCRETE BLOCK: ASTM C90. MINIMUM NET AREA COMPRESSIVE STRENGTH OF C.M.U. = 1,900 PSI. GRADE N-1
 2.b. MORTAR: ASTM C270 (USING THE PROPERTY SPECIFICATION METHOD, PARAGRAPH 3.2). TYPE S MORTAR, MINIMUM COMPRESSIVE STRENGTH = 1,800 PSI.
 2.c. BOND BEAM AND CORE FILL: ASTM C476. COARSE OR FINE TYPE. PLACE PER ACI 530.1 TABLE 5.
 2.d. JOINT REINFORCING: HOT-DIPPED GALVANIZED FINISH, 9 GAGE MINIMUM SIDE WIRES AND CROSS WIRES, EXCEPT USE 3/16 INCH DIAMTER SIDE WIRES WHERE "HEAVY-WEIGHT" IS REQUIRED.
 2.e. BAR REINFORCING: ASTM A615. GRADE 60, UNLESS OTHERWISE NOTED.
 2.f. WIRE TIES AND ANCHORS: RECTANGULAR TYPE, $\frac{3}{16}$" DIAMETER WIRE TIES (HOT DIPPED GALVANIZED).
 2.g. CONCRETE GROUT: ALL FILLED CELLS OF MASONRY UNITS SHALL BE FILLED WITH CONCRETE GROUT (C.M.U. BLOCKFILL) HAVING MINIMUM COMPRESSIVE STRENGTH OF 3,000 PSI AND A MAXIMUM SLOPE OF 9 INCHES.
3. REINFORCED MASONRY: WHERE VERTICAL BARS ARE TO BE GROUTED INTO CORES, THE FOLLOWING REQUIREMENTS APPLY:
 3.a. PROVIDE DOWELS FROM FOOTING, SAME SIZE AND SPACING AS WALL BARS. LAP 24 INCHES MINIMUM WITH WALL BAR. EMBED INTO FOOTING 9 INCHES W/ STANDARD HOOK TERMINATION.
 3.b. PROVIDE CONTINUOUS VERTICAL CAVITY, AT LEAST 3 INCHES x 4 INCHES IN SIZE, FREE OF MORTAR DROPPING.
 3.c. PROVIDE REBAR ALIGNMENT DEVICES AT MAXIMUM SPACING OF 96 BAR DIAMETERS (MINIMUM OF 2 PER BAR).
 3.d. AT SPLICES IN VERTICAL BARS, PROVIDE 48 BAR DIAMETER LAP.
 3.e. ALL REINFORCEMENT MUST BE INSTALLED AND SECURELY ANCHORED IN PLACE PRIOR TO PLACEMENT OF GROUT.
 3.f. MAXIMUM HEIGHT OF GROUT LIFT = 5'-0"
 3.g. ALL C.M.U. USED IN REINFORCED MASONRY SHALL BE TWO CELL UNITS.
4. MISCELLANEOUS:
 4.a. VERTICAL COLLAR JOINTS SHALL BE FILLED SOLID WITH MORTAR OR GROUT.
 4.b. FILL CORE SOLID AROUND ANCHOR BOLTS.
 4.c. PROVIDE 100% SOLID BLOCKS OR SOLIDLY-FILLED HOLLOW BLOCKS FOR AT LEAST 4 INCHES ALL AROUND EXPANSION BOLTS.
 4.d. HOLLOW MASONRY UNITS TO BE LAID WITH FULL MORTAR COVERAGE ON HORIZONTAL AND VERTICAL FACE SHELLS. WEBS SHALL ALSO BE BEDDED IN THE STARTING COURSE ON FOOTINGS AND WHEN ADJACENT TO CELLS OR CAVITIES TO BE REINFORCED OR FILLED WITH CONCRETE OR GROUT. SOLID UNITS TO BE LAID WITH FULL HEAD AND BED JOINTS.
 4.e. PROVIDE JOINT REINFORCING AT 16 INCHES, EXCEPT AS NOTED.
 4.f. LAP JOINT REINFORCING 6 INCHES FOR STANDARD, 15 INCHES FOR HEAVY-WEIGHT.
 4.g. WHERE MASONRY UNITS ARE USED ABOVE HOLLOW UNITS OF DIFFERENCE THICKNESS, PROVIDE CONTINUOUS COURSE OF 100% SOLID MASONRY AT LEAST 8 INCHES HIGH BELOW TRANSITION.
 4.h. IN ALL WALLS WITH BRICK VENEER, PROVIDE RECTANGULAR 3/16 INCH DIAMETER WIRE WALL TIES (FIXED OR ADJUSTABLE) AT 16 INCHES ON CENTER HORIZONTALLY AND VERTICALLY.
 4.i. BLOCK PLACEMENT: ALL CELLS TO BE FILLED WITH CONCRETE SHALL BE AS STRAIGHT AS POSSIBLE. BLOCK SHOULD NOT BE STAGGERED SO AS TO CONSTRICT THE FLOW OF CONCRETE IN ANY WAY. THIS SHOULD BE ACCOMPLISHED BY PLACING PIECES OF BLOCK VERTICALLY BETWEEN FILLED CELLS IN NON-MODULAR SECTION OF WALL AND ABOVE AND BELOW NON-MODULAR MASONRY OPENINGS.

D. STRUCTURAL LUMBER

1. SPECIFICATIONS: UNLESS SPECIFICALLY SHOWN OTHERWISE, DESIGN, FABRICATION AND ERECTION SHALL BE GOVERNED BY THE LATEST EDITION OF THE FOLLOWING:
 1.a. NATIONAL DESIGN SPECIFICATION FOR WOOD CONSTRUCTION.
 1.b. U.S. PRODUCT STANDARD PS1
2. MATERIALS:
 2.a. STRUCTURAL LUMBER (INCLUDING BEARING AND EXTERIOR WALL STUDS): MINIMUM PROPERTIES OF SPRUCE-PINE-FIR #2, ALLOWABLE STRESSES PER THE NATIONAL DESIGN SPECIFICATION SUPPLEMENT, LATEST EDITION, 19% MAXIMUM MOISTURE CONTENT. OTHER ACCEPTABLE SPECIES INCLUDE HEM-FIR, SOUTHERN PINE AND DOUGLAS FIR-LARCH.
 2.b. STRUCTURAL SHEATHING (PLYWOOD & OSB):
 2.b.1. FOR ROOFS: OSB OR C-D PLUGGED, 5-PLY, EXPOSURE 1, 7/16" THICK.
 2.b.2. FOR WALLS: OSB OR C-D PLUGGED, 5-PLY EXPOSURE 1, 7/16" THICK.
 2.b.3. FOR WALLS NOT AT SHEAR WALLS: OSB 7/16" THICK WITH PANEL INDEX W24, EXPOSURE 1.
 2.c. ALL FRAMING EXPOSED TO THE WEATHER OR IN CONTACT WITH MASONRY OR CONCRETE SHALL BE PRESSURE TREATED IN ACCORDANCE WITH THE AMERICAN WOOD PRESERVERS ASSOCIATION SPECIFICATIONS.
 2.c.1. WHERE POSSIBLE, ALL EXPOSED CUTS AND HOLES SHOULD BE COMPLETED BEFORE TREATMENT.
 2.c.2. CUTS AND HOLES DUE TO ON-SITE FABRICATION SHALL BE BRUSHED WITH TWO COATS OF COPPER NAPHTHENATE SOLUTION CONTAINING A MINIMUM OF 2% METALLIC COPPER IN SOLUTION (PER AWPA STD. M4).
3. CONNECTIONS:
 3.a. JOISTS & RAFTERS TO SIDES OF BEAMS: 16 GA. GALVANIZED STANDARD JOIST HANGERS, UNLESS OTHERWISE NOTED.
 3.b. RAFTERS AND TRUSSES TO TOPS OF WALLS AND BEAMS: 18 GA. GALVANIZED HURRICANE ANCHORS.
 3.c. PLYWOOD TO ROOF TRUSSES OR RAFTERS: NAILED WITH RING-SHANK NAILS. SEE STRUCTURAL WOOD PANEL NOTES BELOW.
 3.c.1. PROVIDE PLYWOOD CLIPS AT MID-SPAN OF PLYWOOD BETWEEN SUPPORTS, OR
 3.c.2. PROVIDE BLOCKING BETWEEN ROOF FRAMING AT PLYWOOD EDGES AND NAIL WITH EDGE NAILING PATTERN.
 3.d. ALL METAL CONNECTIONS SHALL BE SIMPSON OR USP.
 3.e. ALL CONNECTORS TO BE INSTALLED PER MANUFACTURER'S INSTRUCTIONS.
 3.e.1. CONTACT ENGINEER WITH QUESTIONS PERTAINING TO HOLDOWNS SPECIFIED ON PLANS.
 3.f. STUD COLUMNS SHALL BE SECURED WITH TWO ROWS OF 3 INCH 10d NAILS SPACED 24 INCHES ON CENTER, UNLESS OTHERWISE NOTED.
 3.g. LOAD VALUES FOR 8d, 10d, 16d AND 20d DESIGNATIONS IN THE FASTENER SCHEDULES THROUGHOUT THESE PLANS REFER TO COMMON WIRE NAILS, UNLESS OTHERWISE NOTED. NAILS SHALL CONFORM TO A RECOGNIZED NATIONAL STANDARD, SUCH AS ASTM F1667, AS PRESCRIBED BY THE MODEL BUILDING CODES.
4. WOOD TRUSSES:
 4.a. WOOD TRUSSES SHALL BE DESIGNED BY THE MANUFACTURER IN ACCORDANCE WITH THE APPLICABLE PROVISIONS OF THE LATEST ADDITION OF THE NATIONAL DESIGN SPECIFICATION OF THE NATIONAL FOREST PRODUCTS ASSOCIATION.
 4.a.1. THE DESIGN FOR METAL PLATE CONNECTED WOOD TRUSSES OF THE TRUSS PLATE INSTITUTE.
 4.b. WOOD TRUSSES SHALL BE ERECTED IN ACCORDANCE WITH THE TRUSS MANUFACTURER'S REQUIREMENTS. THIS WORK SHALL BE DONE BY A QUALIFIED AND EXPERIENCE CONTRACTOR. TRUSS ERECTION BY AN INEXPERIENCED OR NON-QUALIFIED CONTRACTOR CAN RESULT IN CONSTRUCTION COLLAPSE AND/OR SERIOUS INJURY AND DAMAGE.
 4.c. THE CONTRACTOR SHALL PROVIDE ALL TEMPORARY AND PERMANENT BRACING AS REQUIRED FOR SAFE ERECTION AND PERFORMANCE OF THE TRUSSES. THE GUIDELINES SET FORTH BY THE TRUSS PLATE INSTITUTE PUBLICATION "HIB-91, COMMENTARY AND RECOMMENDATIONS FOR HANDLING, INSTALLING AND BRACING METAL PLATE CONNECTED WOOD TRUSSES" SHALL BE A MINIMUM REQUIREMENT.
 4.d. TRUSS MEMBERS AND COMPONENTS SHALL NOT BE CUT, NOTCHED, DRILLED, OR OTHERWISE ALTERED IN ANY WAY WITHOUT WRITTEN APPROVAL OF THE TRUSS DESIGNER.
 4.e. SUBMIT COMPLETE SHOP DRAWINGS TO THE STRUCTURAL ENGINEER OF RECORD FOR ALL WOOD TRUSSES SHOWING MEMBER SIZES, SPECIES, GRADE, MOISTURE CONTENT, SPAN, CAMBER, DIMENSIONS, CHORD PITCH, BRACING REQUIREMENTS AND LOADINGS.
 4.e.1. SHOP DRAWINGS SHALL BE SUBMITTED TO THE ENGINEER AND SHALL BEAR THE SEAL OF A PROFESSIONAL ENGINEER REGISTERED IN THE STATE OF PROJECT LOCATION.
5. STRUCTURAL WOOD PANELS:
 5.a. FABRICATION AND PLACEMENT OF STRUCTURAL WOOD SHEATHING SHALL BE IN ACCORDANCE WITH THE AMERICAN PLYWOOD ASSOCIATION (APA) DESIGN/CONSTRUCTION GUIDE "RESIDENTIAL AND COMMERCIAL" AND ALL OTHER APPLICABLE STANDARDS.
 5.b. ALL STRUCTURALLY REQUIRED WOOD SHEATHING SHALL BEAR THE MARK OF THE APA.
 5.c. WALL SHEATHING:
 5.c.1. SHALL COMPLY WITH THE REQUIREMENTS OF THE GOVERNING CODE.
 5.c.2. WOOD WALL SHEATHING SHALL BE CONTINUOUS OVER A MINIMUM OF TWO SUPPORTS.
 5.c.3. FASTENING: ATTACH SHEATHING TO ITS SPORTING WALL FRAMING WITH 8d NAILS SPACED 3 INCHES ON CENTER AT PANEL EDGES AND AT 6 INCHES ON CENTER IN PANEL FIELD, UNLESS OTHERWISE NOTED ON THE PLANS.
 5.c.4. PROVIDE FULL DEPTH BLOCKING AT WALL SHEATHING PANEL EDGES FOR EXTERIOR WALLS AND INTERIOR SHEAR WALLS.
 5.d. ROOF SHEATHING:
 5.d.1. SHALL BE APA RATED SHEATHING EXPOSURE 1 OR 2.
 5.d.2. ROOF SHEATHING SHALL BE CONTINUOUS OVER A MINIMUM OF TWO SUPPORTS.
 5.d.3. FASTENING: ATTACH SHEATHING TO ITS SUPPORTING ROOF FRAMING WITH 8d RING-SHANK NAILS SPACED 3 INCHES ON CENTER AT PANEL EDGES AND AT 6 INCHES ON CENTER IN PANEL FIELD, UNLESS OTHERWISE NOTED ON THE PLANS.
 5.d.4. PROVIDE SUITABLE EDGE SUPPORT BY USE OF PLYWOOD CLIPS OR LUMBER BLOCKING, UNLESS OTHERWISE NOTED.
 5.e. WOOD FLOOR SHEATHING:
 5.e.1. SHALL BE APA RATED SHEATHING EXPOSURE 1 OR 2.
 5.e.2. FASTENING: ATTACH SHEATHING TO ITS SUPPORTING FLOOR FRAMING WITH 8d RING-SHANK NAILS AT 6 INCHES ON CENTER AT PANEL EDGES AND 12 INCHES ON CENTER IN PANEL FIELD.
 5.e.2.1. ADDITIONAL ATTACHMENT TO FLOOR FRAMING SHALL INCLUDE GLUING OF SHEATHING TO TOPS OF FRAMING.
 5.e.3. PROVIDE SUITABLE EDGE SUPPORT BY USE OF TONGUE AND GROOVE PLYWOOD/OSB OR LUMBER BLOCKING, UNLESS OTHERWISE NOTED.
 5.f. SHEATHING SHALL BE APPLIED WITH THE LONG DIRECTION PERPENDICULAR TO FRAMING.
 5.g. SHEATHING SHALL HAVE A SPAN RATING CONSTANT WITH THE FRAMING SPACING.
 5.h. ALL PANEL END JOINTS SHALL OCCUR OVER FRAMING.
 5.i. APPLY BUILDING PAPER OVER SHEATHING AS REQUIRED BY THE GOVERNING CODE.
 5.j. SHEATHING EDGES SHALL HAVE A 1/8 INCH GAP AT ENDS AND EDGES AS RECOMMENDED IN ACCORDANCE WITH THE APA.
6. STRUCTURAL FIBERBOARD PANELS:
 6.a. FABRICATION AND PLACEMENT OF STRUCTURAL FIBERBOARD SHEATHING SHALL BE IN ACCORDANCE WITH THE APPLICABLE AMERICAN FIBERBOARD ASSOCIATION (AFA).
 6.b. ALL STRUCTURALLY REQUIRED FIBERBOARD SHEATHING SHALL BEAR THE MARK OF THE AFA.
 6.c. FIBERBOARD WALL SHEATHING:
 6.c.1. SHALL COMPLY WITH THE REQUIREMENTS OF THE GOVERNING CODE.
 6.c.2. SHALL BE CONTINUOUS OVER A MINIMUM OF TWO SUPPORTS.
 6.c.3. FASTENING: ATTACH SHEATHING TO SUPPORTING WALL FRAMING WITH 1-1/2 INCH LONG 16 GA. STAPLES SPACED 3 INCHES ON CENTER AT PANEL EDGES AND 6 INCHES ON CENTER IN PANEL FIELD, UNLESS OTHERWISE NOTED.
 6.d. SHEATHING SHALL HAVE A 1/8 INCH GAP AT ENDS AND EDGES AS RECOMMENDED IN ACCORDANCE WITH THE AFA.
 6.e. SPACING BETWEEN BRACED WALL LINES IN EACH STORY SHALL NOT EXCEED 25 FEET ON CENTER IN BOTH LONGITUDINAL AND TRANSVERSE DIRECTIONS.
7. MISCELLANEOUS:
 7.a. USE ONE LINE OF SOLID BLOCKING OR CROSS BRIDGING AT 8 FEET ON CENTER MAXIMUM.
 7.b. FOR ALL JOISTS AND RAFTERS, USE SOLID BLOCKING AT JOIST AND RAFTER BEARING.
 7.c. USE SOLID BLOCKING AT MID-HEIGHT FOR ALL EXTERIOR STUD WALLS AND INTERIOR BEARING PARTITIONS.
 7.d. USE DOUBLE STUDS UNDER BEAM AND LINTEL BEARING, UNLESS SHOWN OTHERWISE IN THESE PLANS.
 7.e. IN AREAS WHERE TOP CHORD OF TRUSSES DO NOT RECEIVE PLYWOOD SHEATHING, PROVIDE 1x4 CONTINUOUS BRIDGING PERPENDICULAR TO TOP CHORDS AND SPACED AT 3 FEET ON CENTER.
 7.e.1. REFER TO TRUSS MANUFACTURER REQUIREMENTS FOR ADDITIONALLY REQUIRED BRACING.
 7.f. PROVIDE AND INSTALL BRIDGING FOR PREFABRICATED WOOD TRUSSES AS INDICATED ONT HE TRUSS MANUFACTURER'S APPROVED SHOP DRAWINGS.
 7.g. PROVIDE BLOCKING IN THE FLOOR UNDER BRACED WALL IF JOISTS ARE PERPENDICULAR TO THE WALL. WHERE JOISTS ARE PARALLEL TO THE WALL LINE ABOVE OR BELOW, A RIM JOIST OR OTHER PARALLEL FRAMING MEMBER SHALL BE PROVIDED. THESE REQUIREMENTS ARE TO ENSURE CONTINUOUS LOAD PATH OF LATERAL FORCES.

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MASTER PLAN

PREPARED FOR:
TIMBERLINE CONSTRUCTION

STRUCTURAL NOTES

ADDITIONS, SUBMITTALS, & REVISIONS

REV	DATE	DESCRIPTION	BY	REV	DATE	DESCRIPTION	BY
1	-------	---------	----	5	---	---	---
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PROJECT #: 221252

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