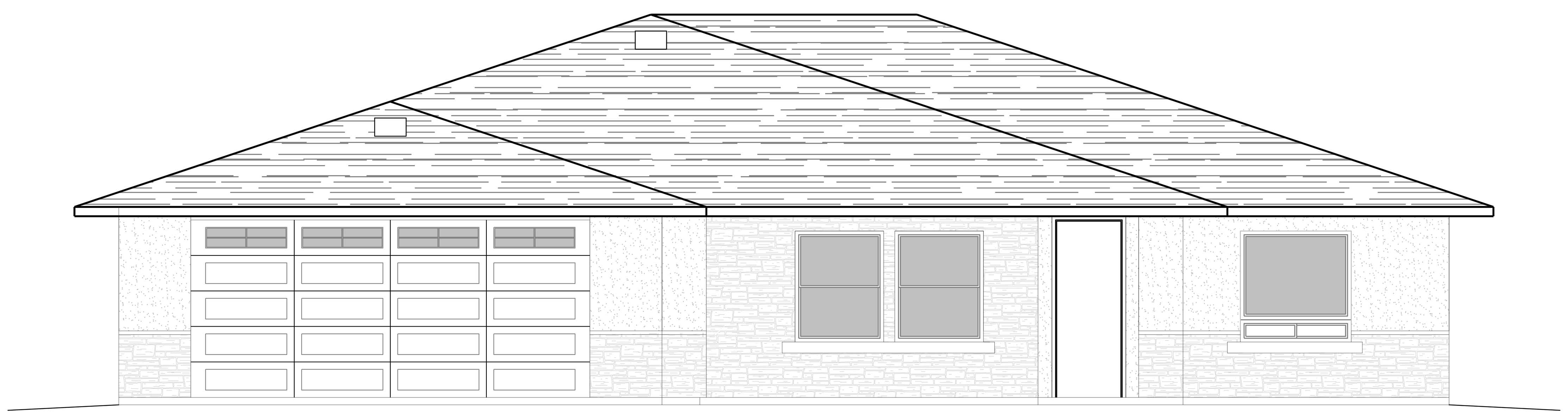
ARCHITECTURAL & STRUCTURAL PLANS FOR
CAPPS CONSTRUCTION
SINGLE FAMILY RESIDENCE



FRONT ELEVATION
N.T.S.

SHEET INDEX

PROPERTY INFORMATION SEARCH

Assessment Number:	012-193-028
Owner Name:	Capps Construction
Community Code:	Heritage Ranch
Tax Rate Area:	114-028
Parcel Size:	15,847 SF
Net:	30,000
Structure Type:	Land

PROJECT INFORMATION

OWNER	KIRK AND CARRIE ALLEN
ADDRESS	270 CATALINA PLACE PASO ROBLES, CA 93446
APN	012-193-003
PHONE	805.540.1185

PROJECT STATISTICS

LOT SIZE	15,847 SQ. FT.
OCCUPANCY (CBC 310.1)	R-3, U
CONSTRUCTION TYPE	VB
FIRE SPRINKLERS	YES
BUILDING HEIGHT	±17'-10"
PROPOSED LIVING	2,338 SQ. FT.
PROPOSED GARAGE	708 SQ. FT.
PROPOSED PORCH	710 SQ. FT.

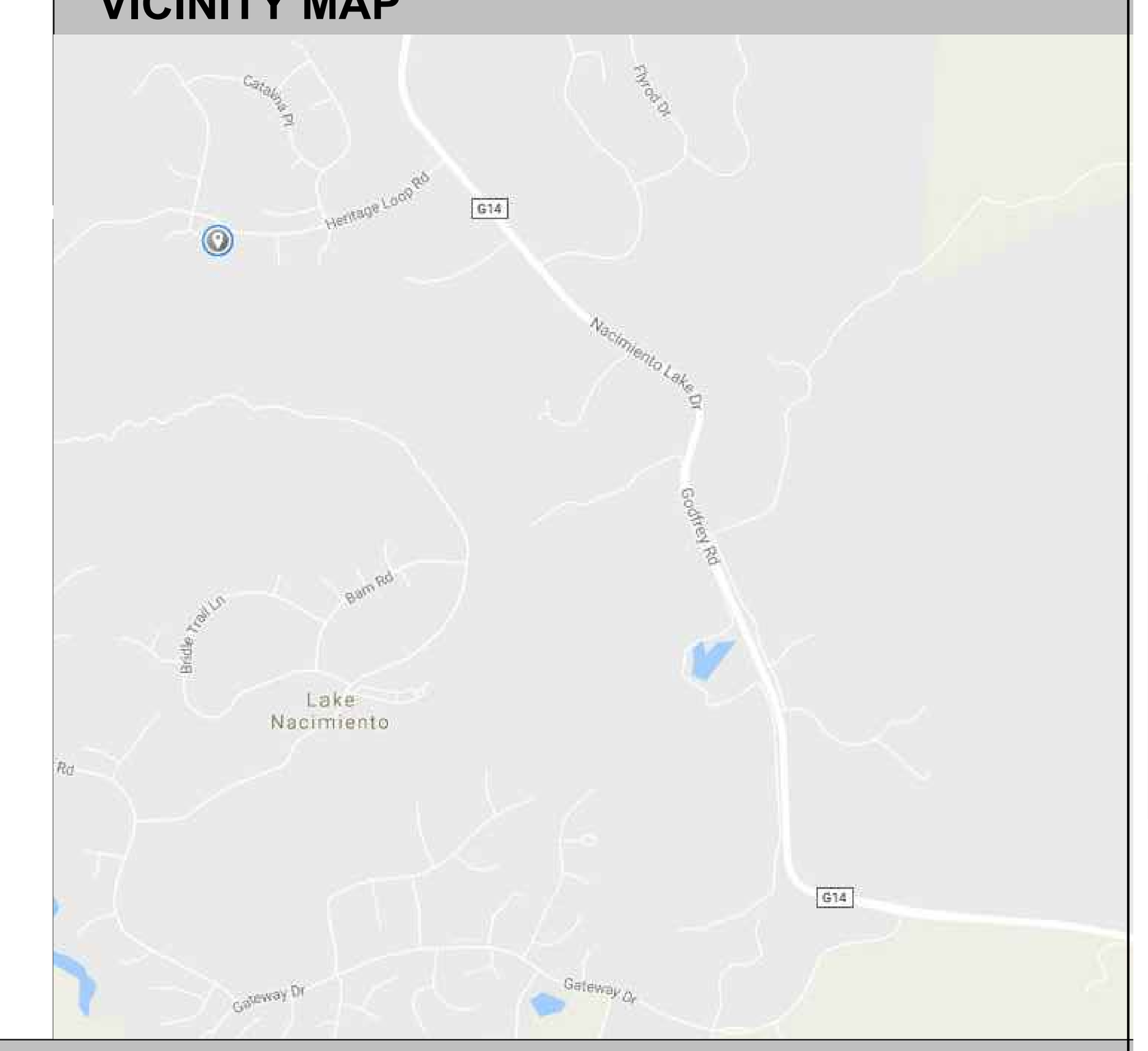
PROJECT DESCRIPTION

PROPOSED SINGLE FAMILY RESIDENCE AS PER PLANS ATTACHED.

PROJECT NOTES

ADDRESSES SHALL BE PLAINLY VISIBLE AND LEGIBLE FROM THE STREET OR ROAD FRONTING THE PROPERTY. ADDRESS NUMBERS SHALL BE 4 INCHES IN HEIGHT, $\frac{1}{2}$" MINIMUM STROKE WIDTH AND OF CONTRASTING COLOR TO THEIR BACKGROUND. WHERE ADDRESS CAN NOT BE VIEWED FROM PUBLIC WAY, A MONUMENT OR POLE SHALL BE USED. R319.

VICINITY MAP



GENERAL CONSTRUCTION NOTES

1. ALL WORK SHALL CONFORM WITH THE:
   2016 CBC (2012 IBC AND CALIFORNIA AMENDMENTS)
   2016 CEC (2011 NEC AND CALIFORNIA AMENDMENTS)
   2016 CMC (2012 IAPMO UMC AND CALIFORNIA AMENDMENTS)
   2016 CPC (2012 IAPMO UPC AND CALIFORNIA AMENDMENTS)
   2016 CENC AND T-24.
   2016 CALIFORNIA GREEN BUILDING CODE
   2016 CFC (2012 IFC AND CALIFORNIA AMENDMENTS)
2. THESE NOTES SHALL APPLY TO ALL DRAWINGS UNLESS OTHERWISE NOTED OR SHOWN. FEATURES OF CONSTRUCTION SHOWN ARE TYPICAL AND THEY SHALL APPLY GENERALLY THROUGHOUT SIMILAR CONDITIONS. ALL OMISSIONS OR CONFLICTS BETWEEN VARIOUS ELEMENTS OF THE WORKING DRAWINGS AND/OR GENERAL NOTES SHALL BE BROUGHT TO THE ATTENTION OF THE ARHCITECT/ ENGINEER BY THE GENERAL CONTRACTOR BEFORE PROCEEDING WITH ANY WORK SO INVOLVED.
3. ALL WORK AND CONSTRUCTION METHODS AND MATERIALS SHALL COMPLY WITH ALL PROVISIONS OF THE BUILDING CODES AND OTHER RULES, REGULATIONS AND ORDINANCES GOVERNING THE CONSTRUCTION SITE. BUILDING CODE REQUIREMENTS IN ALL CASES TAKE PRECEDENCE OVER THE DRAWINGS. IT SHALL BE THE RESPONSIBILITY OF ANYONE SUPPLYING LABOR AND/OR MATERIALS TO BRING TO THE ATTENTION OF THE ARCHITECT/ENGINEER ANY DISCREPANCIES OR CONFLICTS BETWEEN THE REQUIREMENTS OF THE CODE AND THE DRAWINGS.
4. DO NOT SCALE THE DRAWINGS. DIMENSIONS SHOWN SHALL TAKE PRECEDENCE OVER DRAWING SCALE OR PROPORTION. LARGE SCALE DRAWINGS SHALL TAKE PRECEDENCE OVER SMALLER SCALE DRAWINGS.
5. THE CONTRACT DRAWINGS AND SPECIFICATIONS REPRESENT THE FINISHED STRUCTURE. UNLESS OTHERWISE SHOWN, THEY DO NOT INDICATE METHOD OF CONSTRUCTION. CONTRACTOR SHALL SUPERVISE AND DIRECT WORK AND SHALL BE SOLELY RESPONSIBLE FOR ALL CONSTRUCTION MEANS, METHODS, TECHNIQUES, SEQUENCES AND PROCEDURES. OBSERVATION VISITS TO THE SITE BY FIELD REPRESENTATIVES OF THE ARCHITECT/ENGINEER SHALL NOT INCLUDE INSPECTIONS OF THE PROTECTIVE MEASURES OR THE CONSTRUCTION PROCEDURES REQUIRED FOR SAME, WHICH ARE THE SOLE RESPONSIBILITY OF THE CONTRACTOR. ANY SUPPORT SERVICES PERFORMED BY THE ARCHITECT/ENGINEER DURING CONSTRUCTION SHALL BE DISTINGUISHED FROM CONTINUOUS AND DETAILED INSPECTION SERVICES WHICH ARE FURNISHED BY OTHERS. THESE SUPPORT SERVICES PERFORMED SOLELY FOR THE PURPOSE OF ASSISTING IN QUALITY CONTROL AND IN ACHIEVING CONFORMANCE WITH CONTRACT DRAWINGS AND SPECIFICATIONS, AND THEREFORE THEY DO NOT GUARANTEE CONTRACTOR'S PERFORMANCE AND SHALL NOT BE CONSTRUED AS SUPERVISION OF CONSTRUCTION.
6. CONTRACTOR HEREBY GUARANTEES TO THE OWNER AND THE ARCHITECT/ENGINEER THAT ALL MATERIALS, FIXTURES, AND EQUIPMENT FURNISHED TO THE PROJECT ARE NEW UNLESS OTHERWISE SPECIFIED. CONTRACTOR ALSO WARRANTS THAT ALL WORK WILL BE OF GOOD QUALITY AND FREE FROM ANY FAULTS AND DEFECTS FOR A PERIOD OF ONE YEAR AFTER THE DATE OF SUBSTANTIAL COMPLETION, UNLESS A GREATER WARRANTY OR GUARANTEE IS REQUIRED BY THE PROJECT SPECIFICATIONS.
7. ANYONE SUPPLYING LABOR AND/OR MATERIALS TO THE PROJECT SHALL CAREFULLY EXAMINE ALL SUBSURFACES TO RECEIVE WORK. ANY CONDITIONS DETRIMENTAL TO WORK SHALL BE REPORTED IN WRITING TO THE CONTRACTOR PRIOR TO BEGINNING WORK. COMMENCEMENT OF WORK SHALL IMPLY ACCEPTANCE OF ALL SUBSURFACES.
8. REFER TO ARCHITECTURAL, MECHANICAL, AND ELECTRICAL DRAWINGS FOR DEPRESSED SLABS CURB, FINISHES, TEXTURES, CLIPS, GROUNDS, ETC., NOT SHOWN ON STRUCTURAL DRAWINGS.
9. ANY MATERIALS STORED AT THE SITE SHALL BE COMPLETELY SUPPORTED FREE OF THE GROUND, COVERED AND OTHERWISE PROTECTED TO AVOID DAMAGE FROM THE ELEMENTS.
10. MORE DETAILED INFORMATION SHALL TAKE PRECEDENCE OVER LESSER DETAILED INFORMATION. SPECIFICATIONS SHALL TAKE PRECEDENCE OVER DRAWINGS.
11. GRADING PLANS, DRAINAGE IMPROVEMENTS, ROAD AND ACCESS REQUIREMENTS AND ENVIRONMENTAL HEALTH CONSIDERATIONS SHALL COMPLY WITH ALL APPLICABLE CODES AND LOCAL ORDINANCES.
12. THE CONTRACTOR AND ALL SUB-CONTRACTORS WILL BE HELD ACCOUNTABLE TO THE ABOVE GENERAL NOTES FOR THE CONSTRUCTION OF THE PROJECT.
13. THE CONTRACTOR SHALL BE RESPONSIBLE TO REMOVE OR DISBURSE ANY EXCESS MATERIAL FROM PROJECT SITE.
14. THIS SET OF PLANS TO BE ON JOB SITE AT ALL TIMES DURING CONSTRUCTION. ALL WORK SHALL BE DONE IN ACCORDANCE WITH THE APPROVED PLANS. NO CHANGES OR REVISIONS TO THE APPROVED PLANS OR SPECIFICATIONS SHALL BE PERMITTED UNLESS SUBMITTED TO AND APPROVED BY THE BUILDING OFFICIAL. THE ISSUANCE OF A PERMIT SHALL NOT PREVENT THE BUILDING OFFICIAL FROM REQUIRING THE CORRECTION OF ERRORS OR OMISSIONS FROM THE APPROVED PLANS AND SPECIFICATIONS. [CBC 108]
15. ALL CONTRACTORS AND SUB-CONTRACTORS MUST HAVE ON FILE WITH THE BUILDING DEPARTMENT, A LIST OF ALL SUCH CONTRACTORS AND SUB-CONTRACTORS WITH APPROPRIATE CURRENT BUSINESS LICENSE NUMBERS.
16. UNLESS NOTED OTHERWISE, ALL VESTIBULES, CLOSETS, COLUMNS, PROJECTIONS, RECESSES, OR OTHER ADJACENT AREAS WITHIN SCHEDULED AREA SHALL HAVE FINISHES AS SCHEDULED FOR THE RESPECTIVE SPACES IN WHICH THEY OCCUR.
17. CONTRACTOR SHALL VERIFY ALL SETBACKS, EASEMENTS, CONTOURS, AND BUILDING PAD PRIOR TO CONSTRUCTION.
18. TRUSS CALCULATIONS FOR APPROVED PROJECTS ARE REQUIRED TO BE ON THE JOB SITE AT TIME OF FRAMING INSPECTION WITH THE APPROPRIATE REQUIRED SIGNATURES AND STATEMENT AS FOLLOWS: TRUSS CALCULATIONS SHALL INCLUDE THE WET-STAMP AND SIGNATURE OF THE TRUSS DESIGN ENGINEER. IN ADDITION, THEY SHALL INCLUDE ON THE COVER SHEET A WET- SIGNED STATEMENT FROM THE PROJECT'S DESIGN ENGINEER THAT TRUSS CALCULATIONS AND LAYOUTS ARE IN SUBSTANTIAL CONFORMANCE WITH THE STRUCTURAL DESIGN AND INTENT OF THE STRUCTURE. FAILURE TO PROVIDE THEM AS STATED WILL RESULT IN A CORRECTION AND A FAILURE TO PASS FRAMING INSPECTION. [BSP]
19. VERIFY LOCATION OF ALL UTILITY TIE-INS AT STREET AND POINT OF CONNECTIONS AT BUILDING PRIOR TO CONSTRUCTION.
20. A COPY OF SOILS REPORT SHALL BE ON SITE DURING FOUNDATION INSPECTION.
21. ALL PROPERTY CORNERS SHOULD BE ESTABLISHED AT THE TIME OF FOUNDATION INSPECTION WITH THE MARK OF A LICENSED SURVEYOR.

DRAFTING & DESIGN
CAD DESIGN - AS BUILTS
RESIDENTIAL PLANS
610 10TH ST. SUITE "D"
PASO ROBLES, CA
93446
BUS.#(805)237-0850
FAX #(805)237-0480

PLAN PREPARED FOR:

KIRK & CARRIE ALLEN
LOT 106 TRACT 1990-2
PASO ROBLES, CA 93446

REVISION LOG

REV.	DESCRIPTION	DATE

PROJECT NO. ----
FILE NAME A-1.1 SITE PLAN.DWG
DRAWN BY JJK
DATE 3/31/2017 7:59 AM
SHEET TITLE:

SITE PLAN

SHEET NUMBER:

A-1.1

GRADING AND DRAINAGE PLAN

LOT 106, TRACT 1990-2
EDGEWOOD COURT
HERITAGE RANCH

ENGINEERING
239-4151
John A. Kudla
Civil Engineering &
Structural Design
R.C.E. #50652
610 10th ST. UNIT 'A'
PASO ROBLES, CA.
93446

GENERAL NOTES

1. NO CONSTRUCTION SHALL BE STARTED WITHOUT PLANS APPROVED BY THE COUNTY DEPARTMENT OF PLANNING AND BUILDING. THE COUNTY SHALL BE NOTIFIED AT LEAST 24 HOURS PRIOR TO STARTING CONSTRUCTION AND OF THE TIME LOCATION OF THE PRE CONSTRUCTION CONFERENCE. ANY CONSTRUCTION DONE WITHOUT APPROVED PLANS OR PRIOR NOTIFICATION TO THE COUNTY WILL BE REJECTED AND WILL BE AT THE CONTRACTOR'S AND/OR OWNER'S RISK AND EXPENSE.

2. ALL CONSTRUCTION WORK SHALL CONFORM TO THE COUNTY OF SAN LUIS OBISPO STANDARDS AND SPECIFICATIONS AND ALL WORK SHALL BE SUBJECT TO THE APPROVAL OF THE COUNTY.

3. SOILS TESTS SHALL BE PERFORMED IN ACCORDANCE WITH THE COUNTY STANDARDS AND SPECIFICATIONS SECTION 11-351.1403 AND 11-351.1404. ALL TESTS MUST BE MADE WITHIN 15 DAYS PRIOR TO THE PLACING MATERIAL. THE TEST RESULTS SHALL CLEARLY INDICATE THE LOCATION AND SOURCE OF THE MATERIAL.

4. COMPACTION TESTS SHALL BE MADE ON SUBGRADE MATERIAL AND MATERIAL AS SPECIFIED BY THE ENGINEER. SAID TESTS SHALL BE MADE PRIOR TO THE PLACING OF THE NEXT MATERIAL.

5. SUBGRADE MATERIAL SHALL BE COMPACTED TO A RELATIVE COMPACTION OF 95% IN THE ZONE BETWEEN FINISHED SUBGRADE ELEVATION AND ONE FOOT BELOW. ALL MATERIAL IN FILL SECTIONS BELOW THE ZONE MENTIONED ABOVE SHALL BE COMPACTED TO 90% RELATIVE COMPACTION.

4. AN EFFORT HAS BEEN MADE TO DEFINE THE LOCATION OF UNDERGROUND FACILITIES WITHIN THE JOB SITE. HOWEVER, ALL EXISTING UTILITY AND OTHER UNDERGROUND STRUCTURES MAY NOT BE SHOWN ON THIS PLAN AND THEIR LOCATION WHERE SHOWN IS APPROXIMATE. THE CONSTRUCTION CONTRACTOR AGREES THAT HE SHALL ASSUME SOLE AND COMPLETE RESPONSIBILITY FOR LOCATING OR HAVING LOCATED ALL UNDERGROUND UTILITIES AND OTHER FACILITIES AND FOR PROTECTING THEM DURING CONSTRUCTION.

5. ALL UTILITY COMPANIES MUST BE NOTIFIED PRIOR TO THE START OF CONSTRUCTION. THE CONSTRUCTION CONTRACTOR SHALL CONTACT UNDERGROUND SERVICE ALERT (U.S.A.) AT 1-800-642-2444 2 TO 10 DAYS PRIOR TO THE START OF EXCAVATION AND SHALL VERIFY THE LOCATION OF ANY KNOWN UTILITIES AND WHETHER OR NOT A REPRESENTATIVE OF EACH COMPANY WILL BE PRESENT DURING EXCAVATION.

6. A REGISTERED CIVIL ENGINEER MUST CERTIFY THAT THE IMPROVEMENTS WHEN COMPLETED ARE IN ACCORDANCE WITH THE PLANS PRIOR TO THE REQUEST FOR A FINAL INSPECTION. AS-BUILT PLANS ARE TO BE PREPARED AFTER CONSTRUCTION IS COMPLETED. THE CIVIL ENGINEER CERTIFYING THE IMPROVEMENTS AND PREPARING AS-BUILT PLANS WILL BE PRESENT WHEN THE FINAL INSPECTION IS MADE.

7. AN INSPECTION AGREEMENT IS REQUIRED PRIOR TO THE START OF CONSTRUCTION.

8. ALL UTILITY COMPANIES MUST BE NOTIFIED PRIOR TO THE START OF CONSTRUCTION.

9. A COUNTY ENCROACHMENT PERMIT IS REQUIRED FOR ALL WORK DONE WITHIN THE COUNTY RIGHT-OF-WAY.

10. THE COUNTY INSPECTOR ACTING ON BEHALF OF THE COUNTY DEPARTMENT OF PLANNING AND BUILDING MAY REQUIRE REVISIONS IN THE PLANS TO SOLVE UNFORESEEN PROBLEMS THAT MAY ARISE IN THE FIELD. ALL REVISIONS SHALL BE SUBJECT TO THE APPROVAL OF THE DEVELOPER'S ENGINEER.

11. THE CONTRACTOR SHALL CONFIRM THE STRUCTURAL SECTION WHICH SHALL BE BASED ON SOILS TESTS MADE AT THE TIME OF CONSTRUCTION AND ON A TRAFFIC INDEX OF 4.5 FOR ALL ROADS.

12. HYDROSEEDING SHALL BE PLACED ON ALL DISTURBED SURFACES OTHER THAN PAVED OR GRAVEL SURFACES, PRIOR TO FINAL INSPECTION.

13. FOR ANY PUBLIC IMPROVEMENTS TO BE MAINTAINED BY THE COUNTY, IF ENVIRONMENTAL PERMITS FROM THE U.S. ARMY CORPS OF ENGINEERS, THE REGIONAL WATER QUALITY CONTROL BOARD/STATE WATER RESOURCES CONTROL BOARD, OR THE CALIFORNIA DEPARTMENT OF FISH & GAME ARE REQUIRED, THE DEVELOPER SHALL:

A. SUBMIT A COPY OF ALL SUCH COMPLETED PERMITS TO THE COUNTY DEPARTMENT OF PLANNING AND BUILDING

OR

B. DOCUMENT THAT THE REGULATORY AGENCIES DETERMINED THAT SAID PERMIT IS NOT REQUIRED:

PRIOR TO ACCEPTANCE OF THE COMPLETED IMPROVEMENTS FOR COUNTY MAINTENANCE AND RELEASE OF IMPROVEMENT SECURITY. ANY MITIGATION MONITORING REQUIRED BY SAID PERMITS WILL REMAIN THE RESPONSIBILITY OF THE DEVELOPER.

PROJECT AIR QUALITY

DURING CONSTRUTION/GROUND DISTURBING ACTIVITIES, THE CONTRACTOR OR BUILDER SHALL DESIGNATE A PERSON OR PERSONS TO MONITOR THE DUST CONTROL PROGRAM AND TO ORDER INCREASED WATERING, AS NECESSARY, TO PREVENT TRANSPORT OF DUST OFF SITE. THEIR DUTIES SHALL INCLUDE HOLIDAY AND WEEKEND PERIODS WHEN WORK MAY NOT BE IN PROGRESS. THE NAME AND TELEPHONE NUMBER OF SUCH PERSONS SHALL BE PROVIDED TO THE APCD PRIOR TO COMMENCEMENT OF CONSTRUCTION.

THE MEASURES FOR DUST CONTROL ARE AS FOLLOWS, BUT NOT LIMITED TO:

A. REDUCE THE AMOUNT OF DISTURBED AREA WHERE POSSIBLE

B. USE OF WATER TRUCKS OR SPRINKLER SYSTEMS IN SUFFICIENT QUANTITIES TO PREVENT AIRBORNE DUST FROM LEAVING THE SITE. INCREASED WATERING FREQUENCY WILL BE REQUIRED WHENEVER WIND SPEEDS EXCEED 15 MPH. RECLAIMED (NON-POTABLE) WATER SHALL BE USED WHENEVER POSSIBLE.

C. ALL DIRT STOCK PILE AREAS SHALL BE SPRAYED DAILY AS NEEDED.

D. PERMANENT DUST CONTROL MEASURES IDENTIFIED IN THE APPROVED PROJECT REVEGETATION AND LANDSCAPE PLANS SHALL BE IMPLEMENTED AS SOON AS POSSIBLE FOLLOWING COMPLETION OF ANY SOIL DISTURBING ACTIVITIES.

E. EXPOSED GROUND AREAS THAT ARE PLANNED TO BE REWORKED AT DATES GREATER THEN ONE MONTH AFTER INITIAL GRADING SHOULD BE SOWN WITH A FAST GERMINATING NATIVE GRASS SEED AND WATERED UNTIL VEGETATION IS ESTABLISHED.

F. ALL DISTURBED SOIL AREAS NOT SUBJECT TO REVEGETATION MUST BE STABILIZED USING APPROVED CHEMICAL SOIL LINDENS, JUTE NETTING, OR OTHER METHODS APPROVED IN ADVANCE BY APCD.

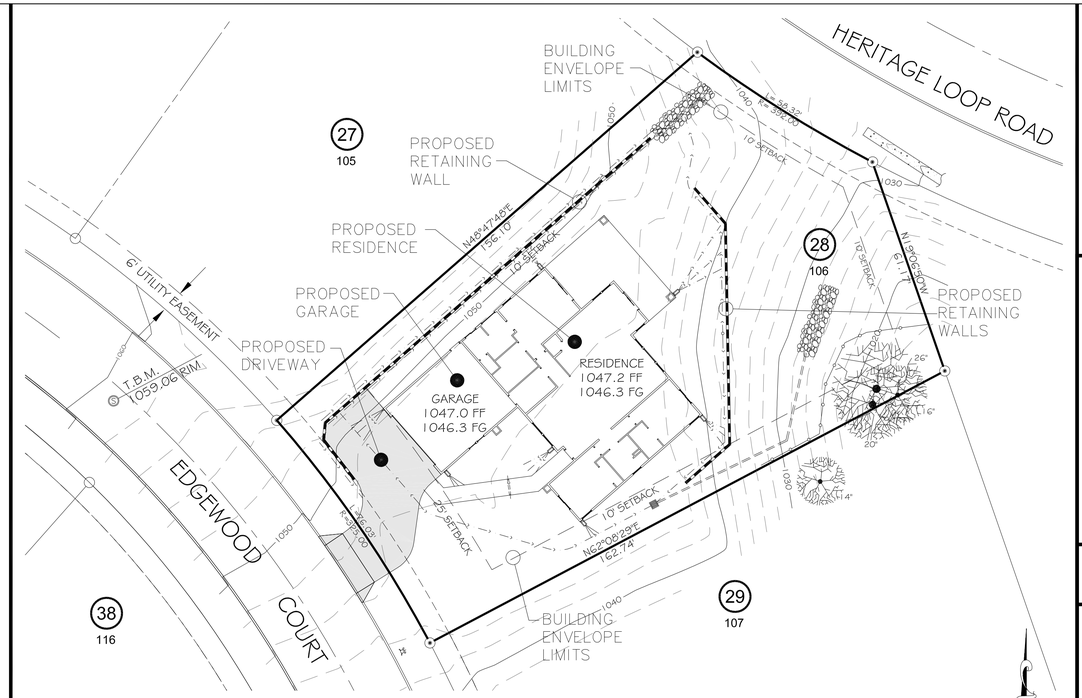
G. ALL ROADWAYS, DRIVEWAYS, SIDEWALKS, ETC. TO BE PAVED SHALL BE COMPLETED AS SOON AS POSSIBLE. IN ADDITION, BUILDING PADS SHOULD BE LAID AS SOON AS POSSIBLE AFTER GRADING UNLESS SEEDING OR SOIL BINDERS ARE USED.

H. VEHICLES SPEED FOR ALL CONSTRUCTION VEHICLES SHALL NOT EXCEED 15 MPH ON ANY UNPAVED SURFACE AT THE CONSTRUCTION SITE.

I. ALL TRUCKS HAULING DIRT, SAND, SOIL, OR OTHER LOOSE MATERIALS ARE TO BE COVERED OR SHALL MAINTAIN AT LEAST TWO FEET OF FREEBOARD (MINIMUM VERTICAL DISTANCE BETWEEN TOP OF LOAD AND TOP OF TRAILER) IN ACCORDANCE WITH CALIFORNIA VEHICLE CODE SECTION 23114.

J. INSTALL WHEEL WASHERS WHERE VEHICLES ENTER AND EXIT UNPAVED ROADS ONTO STREETS, OR WASH OFF TRUCKS AND EQUIPMENT LEAVING THE SITE.

K. SWEEP STREETS AT THE END OF EACH DAY IF VISIBLE SOIL MATERIAL IS CARRIED ONTO ADJACENT PAVED ROADS. WATER SWEEPERS WITH RECLAIMED WATER SHALL BE USED WHERE FEASIBLE.



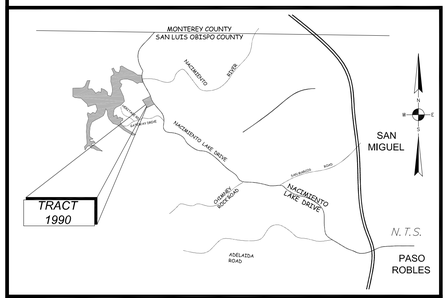
PROJECT BENCHMARK

TEMPORARY BENCHMARK:
FOUND MANHOLE RIM
ELEV = 1059.06' (ASSUMED)

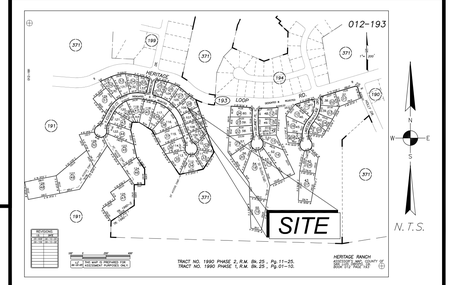
BASIS OF BEARINGS:
GRID NORTH PER CALIFORNIA COORDINATE SYSTEM OF 1983 (CCS 83-ZONE 5). THE MEAN CONVERGENCE ANGLE FOR THIS SITE IS -01°38'40".

OVERVIEW MAP

SCALE: 1"= 20'



VICINITY MAP - HERITAGE RANCH



TRACT 1990-2 - LOT 106

COUNTY ADOPTED CODE ORDINANCE

THESE PLANS HAVE BEEN DESIGNED AND ENGINEERED TO MEET THE CONDITIONS OF THE COUNTY ADOPTED ORDINANCES LISTED:

2016 CALIFORNIA ENERGY CODE
2016 CALIFORNIA BUILDINGS CODE (VOLS 1 & 2)
2016 CALIFORNIA ELECTRICAL CODE
2016 CALIFORNIA FIRE CODE
2016 CALIFORNIA GREEN BUILDING CODE
2016 CALIFORNIA MECHANICAL CODE
2016 CALIFORNIA PLUMBING CODE
2016 CALIFORNIA REFERENCE STANDARDS CODE
2016 CALIFORNIA RESIDENTIAL CODE
TITLE 19 COUNTY BUILDING AND CONSTRUCTION ORDINANCE
TITLE 23 COUNTY COASTAL ZONE LAND USE ORDINANCE
TITLE 16 COUNTY FIRE CODE ORDINANCE
TITLE 22 COUNTY LAND USE ORDINANCE
2016 INTERNATIONAL BUILDING CODE APPENDIX J GRADING

Table 3-7: PR1 Mandatory Site Design Measures

	MANDATORY SITE DESIGN MEASURES (SELECT AT LEAST ONE)	SELECTED	REASON, IF NOT SELECTED	RELEVANT HANDBOOK SECTION
a.	Roof runoff directed into cisterns or rain barrels for reuse?	No	No Room for Cisterns	5.2.1
b.	Roof runoff directed into vegetated areas (safely away from building foundations and footings)?	No	Not Obtainable	5.2.2
c.	Runoff from sidewalks, walkways, and/or patios directed onto vegetated areas (safely away from the building foundation and footings)?	Yes		5.2.3
d.	Runoff from driveways and/or uncovered parking lots onto vegetated areas (safely away from the building foundation and footings)?	No	Not Obtainable	5.2.4
e.	Construct bike lanes, driveways, uncovered parking lots, sidewalks, walkways, and patios with permeable surfaces?	No	Lot Drains to Rear of Property	5.2.5

SHEET INDEX

SCOPE OF WORK STATEMENT

THE PURPOSE OF THIS PROJECT IS TO CONSTRUCT A SINGLE FAMILY RESIDENCE ON LOT 106, EDGEWOOD COURT TRACT 1990-2 IN HERITAGE RANCH. THIS IS A FINISH GRADED LOT AND SUITABLE FOR THE PROPOSED RESIDENCE.

THIS PROJECT SHALL COMMENCE CONSTRUCTION UPON RECEIPT OF A BUILDING PERMIT AND WILL COMPLETE CONSTRUCTION IN APPROXIMATELY 270 DAYS. THE ESTIMATED START OF CONSTRUCTION IS THE SPRING OF 2017 AND COMPLETION OF CONSTRUCTION IN THE FALL OF 2017.

LOT CERTIFICATION STATUS

LOT 106 IS RECORDED TO HAVE A FINISH PAD ELEVATION OF 1046.0, PER TRACT 1990 - PHASE 2 AS-BUILT PLANS REVIEWED BY WENDELL WILKS, COUNTY OF SAN LUIS OBISPO, DATED 4/25/2011. FIELD SURVEY, BY HORN LAND SURVEYS, PERFORMED ON 9/16/2016, ESTABLISHED FINISH PAD ELEVATION OF APPROXIMATELY 1046.0.

FIRE SAFETY PLAN

PRIOR TO ISSUANCE OF A BUILDING PERMIT, THE PROPERTY OWNER, OR APPROVED OWNER'S AGENT, SHALL RECEIVE AN APPROVED SIGN OFF FROM THE FIRE DEPARTMENT HAVING JURISDICTION FOR THIS PERMIT AND SHALL SHOW THE DEPARTMENT OF PLANNING AND BUILDING PROOF OF THIS SIGN OFF.

FIRE SPRINKLER PLAN

PRIOR TO ISSUANCE OF A BUILDING PERMIT, A FIRE SPRINKLER PERMIT SHALL BE SUBMITTED OR A FIRE SPRINKLER CONTACTOR SHALL CALL THE BUILDING DEPARTMENT STATING THAT A SPRINKLER PLAN IS BEING PREPARED.

PROJECT INFORMATION

OWNER: KIRK & CARRIE ALLEN
270 CATALINA PLACE
PASO ROBLES, CA 93446

PROJECT: EDGEWOOD COURT
LOT 106 OF TRACT 1990-2,
R.M. BK 25, PG 5A,
IN THE COMMUNITY OF HERITAGE RANCH
IN THE COUNTY OF SAN LUIS OBISPO
IN THE STATE OF CALIFORNIA

APN NO: 012-193-028

EROSION CONTROL MONITOR

THE IMPLEMENTATION AND MONITORING OF THE EROSION AND SEDIMENTATION CONTROL PLAN SHALL BE THE CONTRACTOR OF RECORD, OR HIS APPOINTED REPRESENTATIVE:
CAPPS CONSTRUCTION
DEVIN CAPPS
(805) 540-1185

California Coordinates: N 830 E 1145

County Road No.: A5277 LAKESIDE VILLAGE DRIVE

REGISTERED PROFESSIONAL ENGINEER
JOHN A. KUDLA
EXP 9-30-17
50652
CIVIL
STATE OF CALIFORNIA

REVISION LOG

REV.	DESCRIPTION	DATE

SCALE:	*1" = 20'*
PROJECT:	*CAPPS*
DRAWN BY:	*FDW*
CHECKED BY:	*JAK*
DATE:	3/30/17

SHEET TITLE:
TITLE SHEET

SHEET NUMBER:
C.1

TITLE SHEET
LIRK & CARRIE ALLEN
LOT 106, TRACT 1990-2
EDGEWOOD COURT
PASO ROBLES, CA 93446

C:\Documents and Settings\Fred\My Documents\AutoCAD JKE 2017 Dwgs\JKE-17 CAPPS Lot 106\Civil\JKE-17 CAPPS_GP_ LOT 106_3-30-17.dwg 3/30/2017 10:58:06 PM PDT

PROJECT REPORT REQUIREMENTS

FINAL REPORTS

FINAL REPORTS SHALL BE REQUIRED IN ACCORDANCE WITH U.B.C. SECTION 3318.1

PAD CERTIFICATION REQUIREMENT

A SOIL OR CIVIL ENGINEER SHALL DETERMINE GRADING PERFORMED FOR THIS PROJECT IS IN SUBSTANTIAL CONFORMANCE WITH THE APPROVED PLANS AND IS SUITABLE TO SUPPORT THE INTENDED STRUCTURE(S). THE ENGINEER SHALL SUBMIT A FINAL REPORT TO THE COUNTY.

SOIL REPORT REQUIREMENTS

THE SOIL REPORT (ADDENDUM REPORT: H-16897, DATED APRIL15, 2016, BY HALLIN GEOTECHNICAL SERVICES, LLC) OBSERVATIONS AND RECOMMENDATIONS SHALL BE FOLLOWED. A REPRESENTATIVE OF THE GEOTECHNICAL SERVICES SHALL OBSERVE ALL APPLICATIONS REGARDING GENERAL GRADING, PAD GRADING, SLOPE CONSTRUCTION, UTILITY TRENCHES AND FOUNDATION CONSTRUCTION.

PROJECT SURVEY MONUMENTS

EXISTING SURVEY MONUMENTS SHALL BE TIED OUT OR REPLACED IN ACCORDANCE WITH COUNTY STANDARDS AND SPECIFICATIONS.

GRADING APPLICATION REQUIREMENTS:

A. ALL APPLICATIONS ARE FIELD CHECKED BY THE BUILDING OFFICIAL PRIOR TO APPROVAL.

B. PROPOSED PROJECT MUST BE COMPLETELY STAKED OUT PRIOR TO FIELD INSPECTION BY THE BUILDING OFFICIAL.

C. PLACE STAKES AT ALL CULVERT LOCATIONS AND INDICATE SIZE ON STAKES.

D. THE PERMITTEE OR HIS AGENT SHALL NOTIFY THE BUILDING OFFICIAL TWENTY-FOUR (24) HOURS PRIOR TO THE START OF ANY GRADING WORK.

E. THE PERMITTEE OR HIS AGENT SHALL CALL THE BUILDING OFFICIAL FOR FINAL INSPECTION WHEN THE PROJECT IS COMPLETED. THE GRADING BOND, IF APPLICABLE, IS RELEASED UPON THE SATISFACTORY COMPLETION OF THE PROJECT.

F. A FINAL REPORT OF THE GRADING BY THE ENGINEER SHALL BE FILED WHEN REQUIRED BY THE BUILDING OFFICIAL.

G. NOTICE: ANY GRADING VIOLATIONS MAY RESULT IN A NOTICE OF VIOLATION BEING RECORDED WITH THE MONTEREY COUNTY RECORDER.

GRADING AND VEGETATION REMOVAL

TO CONTROL EROSION, ACTUAL GRADING SHALL BEGIN WITHIN 30 DAYS OF VEGETATION REMOVAL OR THAT AREA SHALL BE PLANTED UNDER THE PROVISIONS OF SECTION 16.08.340. NO VEGETATION REMOVAL OR GRADING WILL BE ALLOWED WHICH WILL RESULT IN SILTATION OF WATER COURSE OR UNCONTROLLABLE EROSION (16.08.300 C.2)

GROUND PREPARATION

PREPARATION OF GROUND FOR FILL. THE GROUND SURFACE SHALL BE PREPARED TO RECEIVE FILL BY THE REMOVAL OF TOPSOIL AND OTHER UNSUITABLE MATERIALS AS DETERMINED BY THE SOILS ENGINEER.

PREPARATION OF THE GROUND. THE GROUND SURFACE SHALL BE PREPARED TO RECEIVE FILL BY REMOVING VEGETATION, NON-COMPLYING FILL, TOPSOIL AND OTHER UNSUITABLE MATERIALS SCARIFYING TO PROVIDE A BOND WITH THE NEW FILL.

FILL MATERIAL PERMITTED. NO ORGANIC MATERIAL SHALL BE PERMITTED IN FILLS EXCEPT AS TOPSOIL USED FOR SURFACE PLANT GROWTH ONLY AND WHICH DOES NOT EXCEED 4 INCHES IN DEPTH. (16.08.310 E)

REGISTERED PORTABLE EQUIPMENT USAGE

PRIOR TO ISSUANCE OF GRADING OR CONSTRUCTION PERMITS, THE APPLICANT SHALL PROVIDE EVIDENCE THEY HAVE CONTACTED APCD ON ANY PROPOSED PORTABLE EQUIPMENT REQUIRING APCD OR CARB REGISTRATION, SUCH AS: PORTABLE GENERATORS AND EQUIPMENT WITH ENGINES THAT ARE 50 HORSEPOWER OR GREATER; CHEMICAL PRODUCT PROCESSING AND/OR MANUFACTURING; THE USE OF A STANDBY GENERATOR' BOILERS; IC ENGINES, ETC. SHOULD ANY OF THESE TYPES OF EQUIPMENT BE USED DURING CONSTRUCTION ACTIVITIES CALIFORNIA STATEWIDE PORTABLE EQUIPMENT REGISTRATION (ISSUED BY THE CALIFORNIA AIR RESOURCES BOARD) OR AN APED PERMIT MAY BE REQUIRED.

GRADING AND EROSION CONTROL NOTES

1. ALL GRADING CONSTRUCTION SHALL CONFORM TO THE RECOMMENDATIONS OF THE GEOTECHNICAL ENGINEERING REPORTS AND APPLICABLE CODES AS NOTED:

SOILS ENGINEERING REPORT BY GEOSOLUTIONS DATED OCTOBER 9, 2002

INTERIM GRADING REPORT FOR TRACT 1990 – PHASES I AND II BY BUENA GEOTECHNICAL SERVICES, LLC

PAD CERTIFICATION AND EXPANSION INDEX TEST REPORT (H-16897) BY HALLIN GEOTECHNICAL SERVICES, LLC, DATED APRIL 15, 2016

SOILS ENGINEER FOR THIS PROJECT:
HALLIN GEOTECHNICAL SERVICES, LLC
P.O. BOX 2282
PASO ROBLES, CA 93447-2282
(805) 238-3308

2. ALL GRADING SHALL CONFORM WITH THE COUNTY OF SAN LUIS OBISPO GRADING ORDINANCE AND THE EROSION CONTROL ORDINANCE.

3. ACTUAL GRADING SHALL BEGIN WITHIN 30 DAYS OF VEGETATION REMOVAL OR THE AREA SHALL BE PLANTED TO CONTROL EROSION.

4. DUST CONTROL IS TO BE MAINTAINED AT ALL TIMES DURING CONSTRUCTION.

5. AREAS OF FILL SHALL BE SCARIFIED, KEYED, BENCHED AND RECOMPACTED PER THE BENCH AND KEYWAY RECOMMENDATIONS IN SOILS REPORT, PRIOR TO REPLACING FILL WHILE UNDER OBSERVATION BY A SOIL OR CIVIL ENGINEER.

6. FILL MATERIAL WILL BE RECOMPACTED TO 90% OF MAXIMUM DENSITY.

7. REMOVE ANY DELETERIOUS MATERIAL ENCOUNTERED BEFORE PLACING FILL.

8. NO CUT OR FILL SLOPES WILL BE CONSTRUCTED STEEPER THAN TWO HORIZONTAL TO ONE VERTICAL.

9. ALL DISTRIBUTED AREA SHALL BE HYDRO SEEDED OR PLANTED WITH APPROVED EROSION CONTROL VEGETATION AS SOON AS PRACTICAL AFTER CONSTRUCTION IS COMPLETE.

10. MINIMUM SETBACK TO CREEKS AND BLUFFS SHALL BE MAINTAINED. MINIMUM SETBACK OF TWO FEET FROM ALL PROPERTY LINES WILL BE MAINTAINED FROM ALL GRADING.

11. MINIMUM SLOPE AWAY FROM BUILDINGS SHALL BE 5% FOR THE FIRST TEN FEET AROUND PERIMETER.

12. AN APPROVED EROSION CONTROL PLAN WILL BE REQUIRED TO BE SUBMITTED, APPROVED, IMPLEMENTED AND FUNCTIONAL PRIOR TO THE FIRST INSPECTION.

13. THE SOILS ENGINEER SHALL DETERMINE THE SUITABILITY OF THE SOIL TO SUPPORT THE INTENDED STRUCTURE. A COPY OF ALL COMPACTION TESTS AND FINAL GRADING REPORT SHALL BE SUBMITTED TO THE COUNTY PRIOR TO SCHEDULING ANY INSPECTION.

14. THE SOILS ENGINEER SHALL SUBMIT A LETTER STATING THE GRADING PLANS FOR THIS PROJECT ARE IN CONFORMANCE WITH THE SOILS REPORT OF RECORD.

EROSION CONTROL MEASURES

EROSION AND SEDIMENT CONTROL BEST MANAGEMENT PRACTICES MUST BE IN PLACE AND FUNCTIONAL PRIOR TO THE FIRST INSPECTION. NO INSPECTIONS CAN BE PERFORMED IF THESE DEVICES AREA NOT IN PLACE OR HAVE FAILED TO PROVIDE EROSION CONTROL. FAILURE TO MAINTAIN EROSION CONTROL WILL CAUSE INSPECTIONS TO BE DELAYED UNTIL EROSION CONTROL MEASURES ARE FUNCTIONAL.

PRE-STORM INSPECTIONS SHALL BE CONDUCTED TO ENSURE THAT BEST MANAGEMENT PRACTICES (BMPs) ARE APPROPRIATELY INSTALLED AND MAINTAINED. POST-STORM INSPECTIONS SHALL BE CONDUCTED TO ENSURE THAT BMPs HAVE FUNCTIONED ADEQUATELY. BMPs SHALL BE EVALUATED FOR ADEQUACY AND PROPER IMPLEMENTATION AND WHETHER ADDITIONAL BMPs ARE REQUIRED IN ACCORDANCE WITH THE TERMS OF THE GENERAL PERMIT. QUALIFIED PERSONNEL SHALL CONDUCT INSPECTIONS OF THE SITE:

i. PRIOR TO ANTICIPATED STORM EVENTS.
ii. DURING EXTENDED STORM EVENTS IN 24-HOURS INTERVALS.
iii. AFTER ACTUAL STORM EVENTS.

FIRE PLAN - SITE PLAN REQUIREMENTS:

THE FOLLOWING ITEMS ARE REQUIRED TO BE COMPLETED PRIOR TO THE FINAL INSPECTION OF THIS PROJECT:

A. A FIRE SPRINKLER SYSTEM IS REQUIRED FOR THIS PROJECT.

B. ALL SETBACKS FROM PROPERTY LINE ARE PER COUNTY PLANNING DEPT.

C. FIRE HYDRANTS ARE EXISTING AND APPROVED PER TRACT 1990.

D. DRIVEWAY IS 20'+ WIDE AND CONSTRUCTED OF CONCRETE

E. 100' DEFENSIVE VEGETATION CLEARANCE IS REQUIRED.

F. LPG TANK IS TO HAVE MINIMUM SEPARATION FROM BUILDINGS AND PROPERTY LINES.

G. CLASS 'A' NON-COMBUSTIBLE ROOF IS TO MEET ALL REQUIREMENTS OF CHAPTER 7A OF THE 2010 CALIFORNIA BUILDING CODE.

H. THIS PROJECT SHALL MEET THE FIRE-RESISTANCE-RATED CONSTRUCTION REQUIREMENTS OF THE 2010 CALIFORNIA BUILDING CODE, CHAPTER 7A.

I. THE RESIDENCE SHALL HAVE SEPARATE ADDRESS NUMBERS, ASSIGNED BY THE SLO COUNTY PLANNING DEPARTMENT AND SHALL BE HIGHLY VISIBLE PERMANENT ADDRESS NUMBERS. THE ADDRESS NUMBERS SHALL BE PLACED
AT THE ENTRANCE OF THE DRIVEWAY AND RESIDENCE. REFLECTIVE NUMBERS
ARE HIGHLY RECOMMENDED.

J. SMOKE DETECTORS ARE REQUIRED IN ALL SLEEPING AREAS AND IN HALLWAYS
LEADING TO SLEEPING AREAS.

WHEN ALL OF THE FIRE SAFETY REQUIREMENTS HAVE BEEN COMPLETED, PLEASE CALL THE FIRE PREVENTION BUREAU AT (805) 543-4244, EXTENSION # 3429, TO ARRANGE FOR THE FINAL INSPECTION. FOR MORE INFORMATION, VISIT THE CAL FIRE WEBSITE AT www.calfireslo.org.

ESTIMATED EARTHWORKS

ESTIMATED TOTAL AREA OF DISTURBANCE: 0.22 ACRES

HOUSE AND DRIVEWAY

ESTIMATED CUT: ±340 CUBIC YARDS
ESTIMATED FILL: ±200 CUBIC YARDS

EXCAVATED CUT: ± 7 FOOT
COMPACTED FILL: ± 7 FOOT

(EXCESS CUT MATERIAL SHALL BE ADVANTAGEOUSLY ADDED TO THE GRADED AREA NOT TO EXCEED 1' LIFTS)

SHRINKAGE, CONSOLIDATION AND SUBSIDENCE FACTORS AND LOSSES DUE TO CLEARING AND DEMOLITION OPERATIONS ARE NOT INCLUDED. ESTIMATED EARTHWORK QUANTITIES ARE BASED ON THE APPROXIMATE DIFFERENCE BETWEEN EXISTING GRADES AND PROPASED ROADWAY SUBGRADES, AS INDICATED ON THE PLANS, AND SHOULD VARY ACCORDING TO THESE FACTORS AND LOSSES.

THE GRADING CONTRACTOR SHALL REVIEW THE SITE AND THE GEOTECHNICAL REPORT(S), SHALL ACCEPT OR CONFIRM EXISTING TOPOGRAPHIC INFORMATION, SHALL PERFORM AN INDEPENDENT EARTHWORK QUANTITY ESTIMATE, AND SHALL BID ACCORDINGLY.

PROJECT TRACT DRAINAGE

THE DRAINAGE SHOWN HAS BEEN VERIFIED TO MEET THE APPROVED DRAINAGE FOR THIS TRACT

UTILITY SERVICES

1. UNDERGROUND ELECTRICAL SERVICE IS EXISTING AT THE P.U.E. OF EDGEWOOD COURT TO SERVICE THE NEW RESIDENCE.

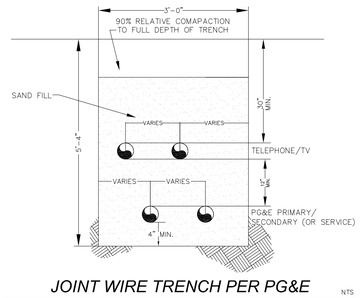
2. UNDERGROUND TELEPHONE SERVICE IS EXISTING AT THE P.U.E. OF EDGEWOOD COURT TO SERVICE THE NEW RESIDENCE.

3. WATER SERVICE IS EXISTING AT THE P.U.E. OF EDGEWOOD COURT. A 1-1/2" SERVICE LINE SHALL BE INSTALLED TO THE RESIDENCE.

4. PROPANE GAS TANK SHALL BE INSTALLED TO THE NEW RESIDENCE USING 1" POLYETHYLENE PLASTIC PIPE. THE TANK SHALL BE SET BACK 10' FROM PROPERTY LINES AND STRUCTURES. TANK SHALL BE COVERED WITH APPROVED DECORATIVE BLIND.

LEGEND

W — PROPOSED WATER SERVICE LINE
ET — PROPOSED ELECTRICAL, TELEPHONE JOINT TRENCH
G — PROPOSED PROPANE SERVICE LINE
PROPOSED PROPANE TANK WITH APPROVED BLIND



JOINT WIRE TRENCH PER PG&E NTS

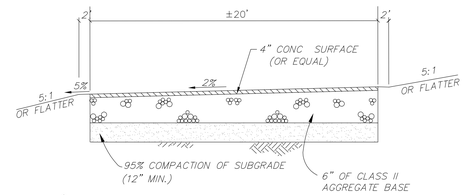
PRIOR TO CONSTRUCTION, THE CONTRACTOR OF RECORD SHALL INSPECT THE LOCATION OF ALL EXISTING UTILITIES, TO VERIFY PROPOSED CONDUIT RUNS FROM THE PROPOSED UTILITY LOCATION TO THE RESIDENCE.

STRUCTURAL TESTS AND SPECIAL INSTRUCTIONS

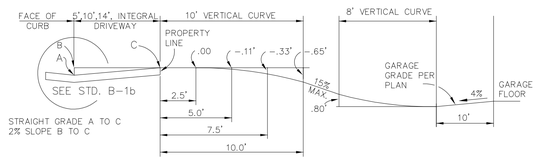
REQUIRED VERIFICATION AND INSPECITON OF SOILS (CBC 1705; TABLE 1705.6)

VERIFICATION AND INSPECITON TASK	VERIFICATION AND INSPECITON TASK	PERIODICALLY DURING TASK LISTED
1. VERIFY MATERIALS BELOW FOOTING ARE ADEQUIATE 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 CONTROLLED FILL MATERIALS	—	X
4. VERIFY USE OF PROPER MATERIALS, DENSITIES AND LIFT THICKNESSES DURING PLACEMENT AND COMPACTION OF CONTROLLED FILL	X	—
5. PRIOR TO PLACEMENT OF CONTROLLED FILL, OBSERVE SUBGRADE AND VERIFY THAT SITE HAS BEEN PREPARED PROPERLY	—	X

SPECIAL INSPECTIONS AND TESTING ARE REQUIRED FOR THIS PROJECT. HALLIN GEOTECHNICAL SERVICES, LLC WILL PERFORM THE REQUIRED INSPECTIONS IN ACCORDANCE TO CBC 1704; TABLE 1704.7 AND WILL PROVIDE INSPECTION REPORTS PRIOR TO THE POURING OF THE FOUNDATION.

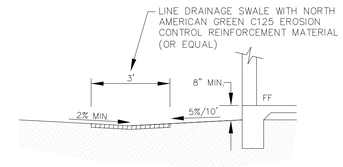


1 PAVED DRIVEWAY SECTION N.T.S.

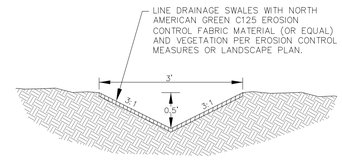


NOTE:
1. MAXIMUM RISE, AND THE RUN, SHALL BE MEASURED FOR THE WORST CONDITION BETWEEN THE BACK OF THE SIDEWALK AND THE FINISHED FLOOR AT THE GARAGE OR CARPORT ENTRANCE.
2. NON-INTEGRAL DRIVEWAY RAMPS MUST BE POURED AS SOON AS PRACTICABLE AFTER CONSTRUCTION OF CURB AND GUTTER.
3. WHENEVER POSSIBLE BUILDING DESIGNERS AND ENGINEERS SHOULD ATTEMPT TO MAXIMIZE A PARKING AREA ADJACENT TO GARAGE WHEN LAYING OUT DWELLINGS AND THEIR DRIVE ACCESS TO THE PUBLIC STREET.

2 STANDARD DOWNWARD DRIVEWAY N.T.S.
REFER TO COUNTY STD DWG B-3c (SIM)



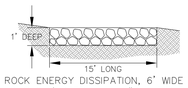
3 DRAINAGE SWALE N.T.S.
REFER TO NORTH AMERICAN GREEN CHANNEL SPECIFICATIONS FOR INSTALLATION INFORMATION



4 DRAINAGE SWALE N.T.S.
REFER TO NORTH AMERICAN GREEN CHANNEL SPECIFICATIONS FOR INSTALLATION INFORMATION, SEE SHEET C.5

LOW IMPACT DEVELOPMENT (LID) MEASURES

THIS PROJECT IS A TIER ONE PROJECT AND IS REQUIRED TO UTILIZE ONE AGENCY APPROVED STORM-WATER RUNOFF REDUCTION MEASURES. THE LOW IMPACT DEVELOPMENT (LID) MEASURE IS ALL DRAINAGE SWALES SHALL BE VEGETATED.



ROCK ENERGY DISSIPATION, 6' WIDE X 15' LONG X 1' DEEP, WITH 6"DIA. RIP RAP, WITH GEO FABRIC (C125 OR EQUAL) (TYP)

5 ENERGY DISSIPATION DETAIL N.T.S.

ENGINEERING
239-4151
John A. Kudla
Civil Engineering & Structural Design
R.C.E. #50652
610 10th ST. UNIT 'A'
PASO ROBLES, CA. 93446

GENERAL NOTES AND INFORMATION

KIRK & CARRIE ALLEN
LOT 106, TRACT 1990-2
EDGEWOOD COURT
PASO ROBLES, CA 93446

REGISTERED PROFESSIONAL ENGINEER — JOHN A. KUDLA — EXP 9-30-17 — 50652 — CIVIL — STATE OF CALIFORNIA

REVISION LOG

REV.	DESCRIPTION	DATE

SCALE:	NTS
PROJECT:	CAPPS
DRAWN BY:	FDW
CHECKED BY:	JAK
DATE:	3/28/17

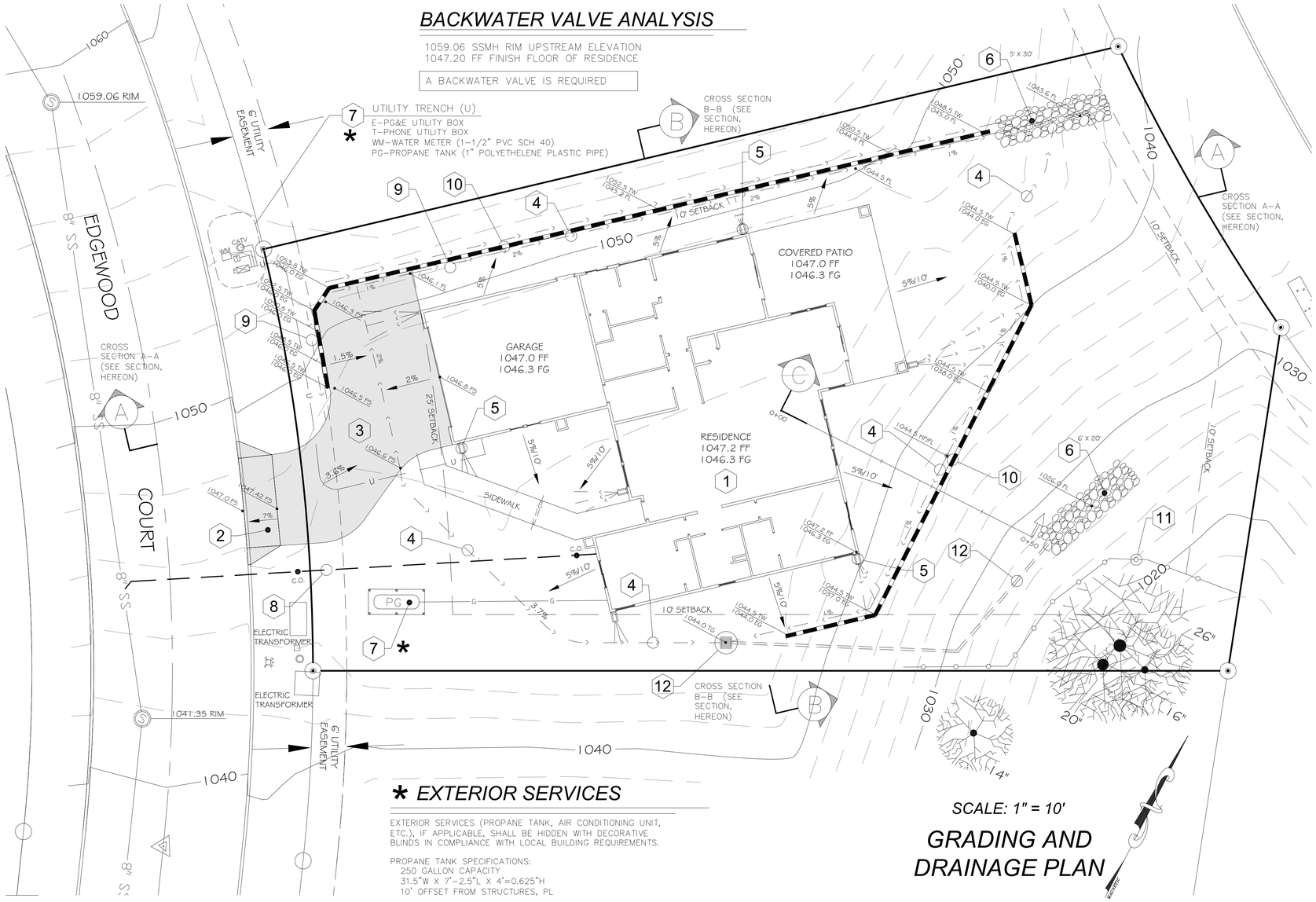
SHEET TITLE:
GENERAL NOTES

SHEET NUMBER:
C.2

BACKWATER VALVE ANALYSIS

1059.06 SSMH RIM UPSTREAM ELEVATION
1047.20 FF FINISH FLOOR OF RESIDENCE

A BACKWATER VALVE IS REQUIRED



* EXTERIOR SERVICES

EXTERIOR SERVICES (PROPANE TANK, AIR CONDITIONING UNIT, ETC.), IF APPLICABLE, SHALL BE HIDDEN WITH DECORATIVE BLINDS IN COMPLIANCE WITH LOCAL BUILDING REQUIREMENTS.

PROPANE TANK SPECIFICATIONS:
250 GALLON CAPACITY
31.5"W X 7'-2.5"L X 4'=0.625"H
10' OFFSET FROM STRUCTURES, PL

SCALE: 1" = 10'

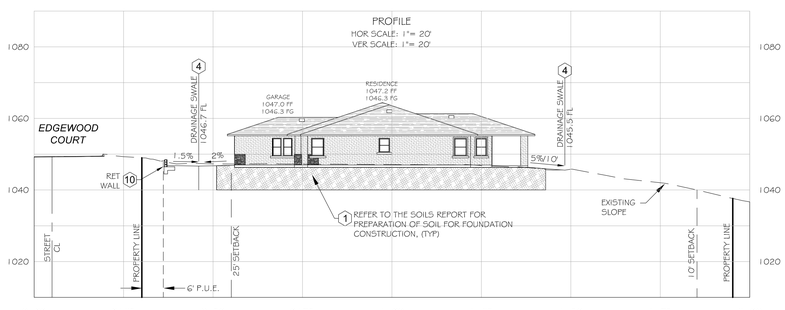
GRADING AND DRAINAGE PLAN

CONSTRUCTION NOTES:

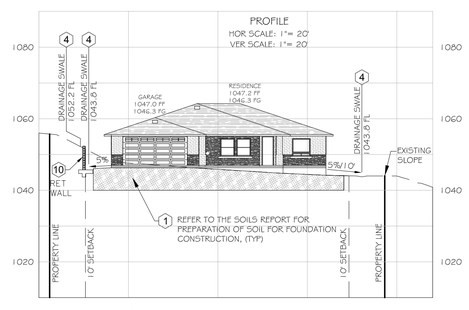
1. CONSTRUCT PAD ELEVATION TO 1065.5 FINISH GRADE PER LOT CERTIFICATION STATUS DOCUMENT, GEOTECHNICAL SOILS REPORT RECOMMENDATIONS BY HALLIN GEOTECHNICAL (TYP).
2. CONSTRUCT RURAL DRIVEWAY APPROACH PER CO STD DWG B-2a. AN ENCROACHMENT PERMIT SHALL BE REQUIRED FOR ALL WORK PERFORMED IN THE COUNTY RIGHT OF WAY, (TYP).
3. CONSTRUCT PAVED DRIVEWAY PER DETAILS 1 AND 2, SHEET C.2, (TYP).
4. CONSTRUCT 3' WIDE DRAINAGE SWALE PER DETAILS 3 AND 4, SHEET C.2, (TYP).
5. INSTALL DRAIN DOWN SPOUT WITH CONCRETE SPLASH BLOCKS, AND DIRECT DRAINAGE TO DRAINAGE SWALES, (TYP).
6. INSTALL ROCK SLOPE PROTECTION PER SLO CO DRAWING DETAIL H-5, SEE DETAIL 5, SHEET C.2, AND INSTALL GEOTECH FABRIC UNDER RIPRAP. (TYP)
7. * INSTALL UTILITIES TO RESIDENCE PER UTILITY SERVICES DETAIL, SHEET C.2, (TYP).
8. INSTALL SEWER LATERAL PER SLO CO DRAWING DETAIL S-3, WITH CLEAN OUT (C.O.), (TYP).
9. EXCAVATE CUTS PER RECOMMENDATIONS OF SOILS ENGINEER, (TYP)
10. CONSTRUCT RETAINING WALL PER DETAILS R-4, R-6, SHEET R1.1, (TYP).
11. INSTALL TREE PROTECTION FENCE PER DETAIL 6, SHEET C.3, (TYP).
12. INSTALL 12" CATCH BASIN WITH 4" FLEXIBLE PVC PIPE, DIRECT TO ROCK SLOPE PROTECTION, (TYP)

SURFACE DRAINAGE NOTE

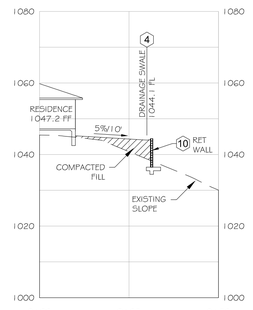
SURFACE DRAINAGE SHALL BE GRADED TO A DRAIN SURFACE WATER AWAY FROM FOUNDATION WALL. THE GRADE SHALL FALL A MINIMUM OF 6" WITH THE FIRST 10'. EXCEPTION: WHERE LOT LINES, WALL, SLOPES, OR OTHER PHYSICAL BARRIERS PROHIBIT 6" OF FALL WITHIN 10', DRAINS OR SWALES SHALL BE CONSTRUCTED TO ENSURE DRAINAGE AWAY FROM STRUCTURE. IMPERVIOUS SURFACES WITHIN 10' OF THE BUILDING FOUNDATION SHALL BE SLOPED A MINIMUM OF 2% AWAY FROM BUILDING (CRC R401.3 DRAINAGE, EXCEPTIONS)



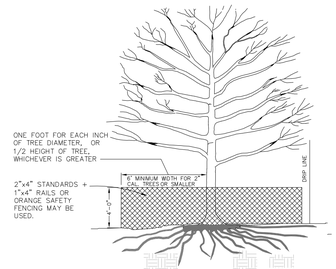
SECTION A-A



SECTION B-B



SECTION C-C



TREE PROTECTION FENCING
4'-6" METAL STAKES
3 WIRE OR NYLON ZIP TIES PER STAKE
4' HIGH, CHAIN LINK, SNOW, OR ORANGE SAFETY FENCE

1. STAKE BENEATH DRIP LINE, MAXIMUM DISTANCE IS 8'-0" FROM EACH STAKE.
2. TIGHTLY STRETCH THE 4'-0" HIGH FENCING TO PREVENT DROOPING.
3. TIE FENCE AND STAKE TOGETHER IN UPRIGHT POSITION WITH A MINIMUM OF THREE TIES PER STAKE.
4. FENCE COMPLETELY AROUND ORIGINAL DRIP LINE TO AVOID COMPACTION FROM VEHICLES AND MATERIAL DURING CONSTRUCTION. ANY WORK WITHIN FENCE LINE REQUIRES ARBORIST MONITORING.
5. REQUEST A TREE INSPECTION.

6 TREE PROTECTION DETAIL

ENGINEERING
239-4151
John A. Kudla
Civil Engineering & Structural Design
R.C.E. #50652
610 10th ST. UNIT 'A'
PASO ROBLES, CA. 93446

GRADING PLAN

KIRK & CARRIE ALLEN
LOT 106, TRACT 1990-2
EDGEWOOD COURT
PASO ROBLES, CA 93446

REGISTERED PROFESSIONAL ENGINEER JOHN A. KUDLA EXP. 9-30-17 50652 CIVIL STATE OF CALIFORNIA

REVISION LOG

REV.	DESCRIPTION	DATE

SCALE:	1" = 10'
PROJECT:	CAPPS
DRAWN BY:	FDW
CHECKED BY:	JAK
DATE:	3/28/17

SHEET TITLE:
GRADING PLAN

SHEET NUMBER:
C.3

BEST MANAGEMENT PRACTICES:

1. TEMPORARY SOIL STABILIZATION (EROSION CONTROL)

SCHEDULING	EC–1
PRESERVATION OF EXISTING VEGETATION	EC–2
HYDRAULIC MULCH	EC–3
HYDROSEEDING	EC–4
SOIL BINDERS	EC–5
STRAW MULCH	EC–6
GEOTEXTILES, PLASTIC COVERS, AND EROSION CONTROL BLANKETS/MATS	EC–7
WOOD MULCHING	EC–8
EARTH DIKES/DRAINAGE SWALES AND LINED DITCHES	EC–9
OUTLET PROTECTION/VELOCITY DISSIPATION DEVICES	EC–10
SLOPE DRAINS	EC–11
STREAMBANK STABILIZATION	EC–12
POLYACRYLAMIDE	EC–13

2. TEMPORARY SEDIMENT CONTROL

SILT FENCE	SE–1
SEDIMENT/DESILTING BASIN	SE–2
SEDIMENT TRAP	SE–3
CHECK DAM	SE–4
FIBER ROLLS	SE–5
GRAVEL BAG BERM	SE–6
STREET SWEEPING AND VACUUMING	SE–7
SANDBAG BARRIER	SE–8
STRAW BALE BARRIER	SE–9
STORM DRAIN INLET PROTECTION	SE–10
CHEMICAL TREATMENT	SE–11

3. WIND EROSION CONTROL

WIND EROSION CONTROL	WE–1

4. TRACKING CONTROL

STABILIZED CONSTRUCTION ENTRANCE/EXIT	TC–1
STABILIZED CONSTRUCTION ROADWAY	TC–2
ENTRANCE/OUTLET TIRE WASH	TC–3

EROSION CONTROL NOTES:

1. EROSION CONTROL MEASURES SHALL BE IMPLEMENTED OR ALL PROJECTS AND SHALL INCLUDE SOURCE CONTROL, INCLUDING PROTECTION OF STOCKPILES, PROTECTION OF SLOPES, PROTECTION OF ALL DISTURBED AREAS, AND PROTECTION OF ACCESSES. IN ADDITION, PERIMETER CONTAINMENT MEASURES SHALL BE PLACED PRIOR TO THE COMMENCEMENT OF GRADING AND SITE DISTURBANCE ACTIVITIES UNLESS THE PUBLIC WORKS DEPARTMENT TEMPORARY MEASURES TO BE UNNECESSARY BASED UPON LOCATION, SITE CHARACTERISTICS OR TIME OF YEAR. THE INTENT OF EROSION CONTROL MEASURES SHALL BE TO KEEP ALL SEDIMENT FROM ENTERING A SWALE, DRAINAGE WAY, WATERCOURSE, OR ONTO ADJACENT PROPERTIES.

2. SITE INSPECTIONS AND APPROPRIATE MAINTENANCE OF EROSION CONTROL DEVICES SHALL BE CONDUCTED AND DOCUMENTED PRIOR TO, DURING, AND AFTER RAIN EVENTS.

3. THE DEVELOPER SHALL BE RESPONSIBLE FOR THE PLACEMENT AND MAINTENANCE OF ALL EROSION CONTROL DEVICES AS SPECIFIED BY THE APPROVED PLAN UNTIL SUCH TIME THAT THE PROJECT IS ACCEPTED AS COMPLETE BY THE PUBLIC WORKS DEPARTMENT. EROSION CONTROL DEVICES MAY BE RELOCATED, DELETED OR ADDITIONAL ITEMS MAY BE REQUIRED DEPENDING ON THE ACTUAL SOIL CONDITIONS DISCRETION OF THE ENGINEER OF WORK, COUNTY INSPECTOR, SWPPP MONITOR, OR RWQCB INSPECTOR. GUIDELINES FOR DETERMINING APPROPRIATE EROSION CONTROL DEVICES ARE INCLUDED IN THE APPENDIX OF THE PUBLIC IMPROVEMENT STANDARDS.

4. ALL EROSION CONTROL DEVICES SHALL BE THE FIRST ORDER OF WORK AND SHALL BE IN PLACE PRIOR TO THE START OF CONSTRUCTION AND/OR ANYTIME WHEN THE RAIN PROBABILITY EXCEEDS 30%. THIS WORK SHALL BE INSTALLED OR APPLIED AFTER EACH AREA IS GRADED AND NO LATER THAN FIVE (5) WORKING DAYS AFTER COMPLETION OF EACH AREA.

5. THE ENGINEER OF WORK AND THE PUBLIC WORKS DEPARTMENT SHALL BE NOTIFIED FOR INSPECTION OF INSTALLED EROSION CONTROL DEVICES.

6. A STANDBY CREW FOR EMERGENCY WORK SHALL BE AVAILABLE AT ALL TIMES DURING THE PHASE OF CONSTRUCTION. NECESSARY MATERIALS SHALL BE AVAILABLE AND STOCK PILED AT CONVENIENT LOCATIONS TO FACILITATE RAPID CONSTRUCTION OR MAINTENANCE OF TEMPORARY DEVICES WHEN RAIN IN IMMINENT.

7. PERMANENT EROSION CONTROL SHALL BE PLACED AND ESTABLISHED WITH 90% COVERAGE ON ALL DISTURBED SURFACES OTHER THAN PAVED OR GRAVEL SURFACES, PRIOR TO FINAL INSPECTION. PERMANENT EROSION CONTROL SHALL BE FULLY ESTABLISHED PRIOR TO FINAL ACCEPTANCE. TEMPORARY EROSION CONTROL MEASURES SHALL REMAIN IN PLACE UNTIL PERMANENT MEASURES ARE ESTABLISHED.

8. IN THE EVENT OF A FAILURE, THE DEVELOPER AND/OR HIS REPRESENTATIVE SHALL BE RESPONSIBLE FOR CLEANUP AND ALL ASSOCIATED COSTS OR DAMAGES. IN THE EVENT THAT DAMAGE OCCURS WITHIN THE RIGHT OF WAY AND THE COUNTY IS REQUIRED TO PERFORM CLEANUP, ALL WORK SHALL CEASE ON THE PROJECT UNTIL CLEANUP COSTS ARE FULLY PAID.

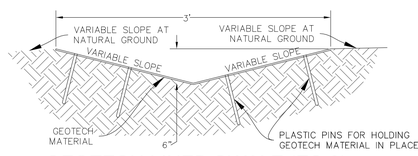
9. IF ANY WORK IS NOT IN COMPLIANCE WITH THE PLANS OR PERMITS APPROVED FOR THE PROJECT, THE DEPARTMENT SHALL REVOKE ALL ACTIVE PERMITS AND RECOMMEND THE COUNTY CODE ENFORCEMENT PROVIDE A WRITTEN NOTICE OR STOP WORK ORDER IN ACCORDANCE WITH SECTION 22.52.140 [23.10] OF THE LAND USE ORDINANCE.

10. ALL PROJECTS INVOLVING SITE DISTURBANCE OF ONE ACRE OR GREATER SHALL COMPLY WITH THE REQUIREMENTS OF THE NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM (NPDES). THE DEVELOPER SHALL SUBMIT A NOTICE OF INTENT (NOI) TO COMPLY WITH THE GENERAL PERMIT FOR CONSTRUCTION ACTIVITY WITH THE REGIONAL WATER QUALITY CONTROL BOARD (RWQCB). THE DEVELOPER SHALL PROVIDE THE COUNTY WITH THE WASTE DISCHARGE IDENTIFICATION NUMBER (WDID #) OR WITH VERIFICATION THAT AN EXEMPTION HAS BEEN GRANTED BY RWQCB.

WDID NUMBER: PROJECT IS EXEMPT FROM WDID REQUIREMENTS

11. PERSON TO CONTACT 24 HOURS A DAY IN THE EVENT THERE IS AN EROSION CONTROL/SEDIMENTATION PROBLEM (STORM WATER COMPLIANCE OFFICER):

NAME: CAPPS CONSTRUCTION
LOCAL PHONE NUMBER: (805) 540–1185



GEOTECH LINED SWALE (EC-9)

N.T.S.

STABILIZED CONSTRUCTION ENTRANCE REQUIREMENTS

THE INGRESS/EGRESS BY CONSTRUCTION VEHICLES SHALL HAVE THE FOLLOWING MEASURE AND REQUIREMENTS IN EFFECT TO MINIMIZE THE TRACKING OF MUD AND DIRT ONTO EXISTING STREETS.

THE FOLLOWING INSTALLATION GUIDELINES SHALL BE IMPLEMENTED:

PROPER GRADE ENTRANCE TO PREVENT RUNOFF FROM THE CONSTRUCTION SITE. THE ENTRANCE ELEVATION OF THE DRIVEWAY SHALL BE LOWER THAN THE CONNECTING STREET.

ROUTE RUNOFF FROM STABILIZED ENTRANCE THROUGH A SEDIMENT TRAPPING DEVICE BEFORE WATER IS DISCHARGED.

DESIGN STABILIZED ENTRANCE TO SUPPORT THE HEAVIEST VEHICLES WHICH WILL USE IT.

SELECT ENTRANCE STABILIZATION (AGGREGATE, ASPHALTIC CONCRETE, CONCRETE) BASED ON LONGEVITY, REQUIRED PERFORMANCE, AND SITE CONDITIONS.

IF AGGREGATE IS SELECTED, PLACE AN 8" THICK COURSE OF AGGREGATE OVER THE GEOTEXTILE FABRIC OR A THICKNESS OF AGGREGATE RECOMMENDED BY A SOILS ENGINEER.

THE FOLLOWING INSPECTION AND MAINTENANCE PROCEDURES SHALL BE FOLLOWED:

INSPECTION OF THE STABILIZED CONSTRUCTION ENTRANCE SHALL BE ROUTINELY PERFORMED FOR DAMAGE AND REPAIR AS NEEDED.

REQUIREMENT THAT ALL EMPLOYEES, SUBCONTRACTORS, AND SUPPLIERS SHALL UTILIZE THE STABILIZED CONSTRUCTION ENTRANCE.

SEDIMENT TRAPPING DEVICES SHALL BE SERVICED ON A REGULAR BASIS.

CONSTRUCTION BMP MAINTENANCE, INSPECTION AND REPAIR

INSPECTIONS WILL BE CONDUCTED AS FOLLOWS:

PRIOR TO A FORECAST STORM

AFTER A RAIN EVENT THAT CAUSES RUNOFF FOR THE CONSTRUTION SITE

AT 24–HOUR INTERVALS DURING EXTENDED RAIN EVENTS

A FOLLOW–UP PROCEDURE SHALL FOLLOW ANY NSPECTION THAT IDENTIFIES DEFICIENCIES IN THE EROSION CONTROL DEVICES.

POST-CONSTRUCTION BMP CONTROL PRACTICES

THE FOLLOWING POST–CONSTRUCTION BEST MANAGEMENT PRACTICES THAT ARE TO BE USED AT THE CONSTRUCTION SITE AFTER ALL CONSTRUCTION IS COMPLETE:

OUTLET PROTECTION / VELOCITY DISSIPATION DEVICES SHALL BE INSTALLED AT ALL DRAINAGE SWALES AND DRAINAGE OUTLETS

ALL SLOPES WILL BE SEEDED WITH, PLANTED AND PROTECTED WITH STRAW MULCH

EROSION CONTROL PLANTING NOTES:

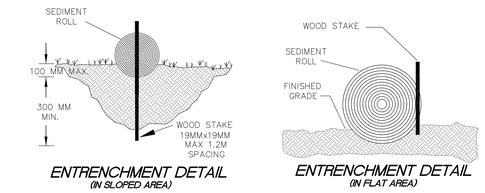
A. ALL EROSION CONTROL PLANTING SHALL COMPLY WITH THE COUNTY REQUIREMENTS FOR REVEGETATION AND LANDSCAPE PLANS SHALL BE IMPLEMENTED AS SOON AS POSSIBLE FOLLOWING COMPLETION OF ANY SOIL DISTURBING ACTIVITIES. HYDROSEEDING SHALL BE INSTALLED ACCORDING TO THE FOLLOWING SPECIFICATIONS:

1. THE WORK SHALL CONSIST OF HYDRO–SEEDING EROSION CONTROL MATERIAL CONSISTING OF A MIXTURE OF STABILIZING EMULSION (BINDER), FIBER, SEED, COMMERCIAL FERTILIZER AND WATER TO CUT AND FILL SLOPES ON CONSTRUCTION SITES.

2. THE SEED MIXTURE FOR THE EROSION CONTROL MATERIAL SHALL CONSIST OF THE FOLLOWING APPROXIMATE PROPORTIONS:

MATERIAL	POUNDS PER ACRE (MEASURED ON SLOPE)
FIBER	1,500 lbs
BARLEY SEED	180 lbs
COMMERCIAL FERTILIZER (16–20–0)	400 lbs
WATER STABILIZING EMULSION	AS NEEDED FOR APPLICATION AS RECOMMENDED BY MANUFACTURER

3. MIXING OF MATERIAL FOR APPLICATION WITH HYDRO–SEEDING EQUIPMENT SHALL BE PERFORMED IN A TANK WITH A BUILT–IN CONTINUOUS AGITATION SYSTEM OF SUFFICIENT OPERATING CAPACITY TO PRODUCE A HOMOGENEOUS MIXTURE AND DISCHARGE SYSTEM WHICH SHALL APPLY THE MIXTURE AT A CONTINUOUS AND UNIFORM RATE. THE TANK SHALL HAVE A MINIMUM CAPACITY OF 1,000 GALLONS. THE ENGINEER MAY AUTHORIZE USE OF EQUIPMENT OF SMALLER CAPACITY IF IT DEMONSTRATED SUCH EQUIPMENT IS CAPABLE OF PERFORMING ALL OPERATIONS SATISFACTORILY.

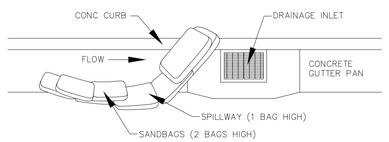


ENTRENCHMENT DETAIL (IN SLOPED AREA)

ENTRENCHMENT DETAIL (IN FLAT AREA)

FIBER ROLLS (SE-5)

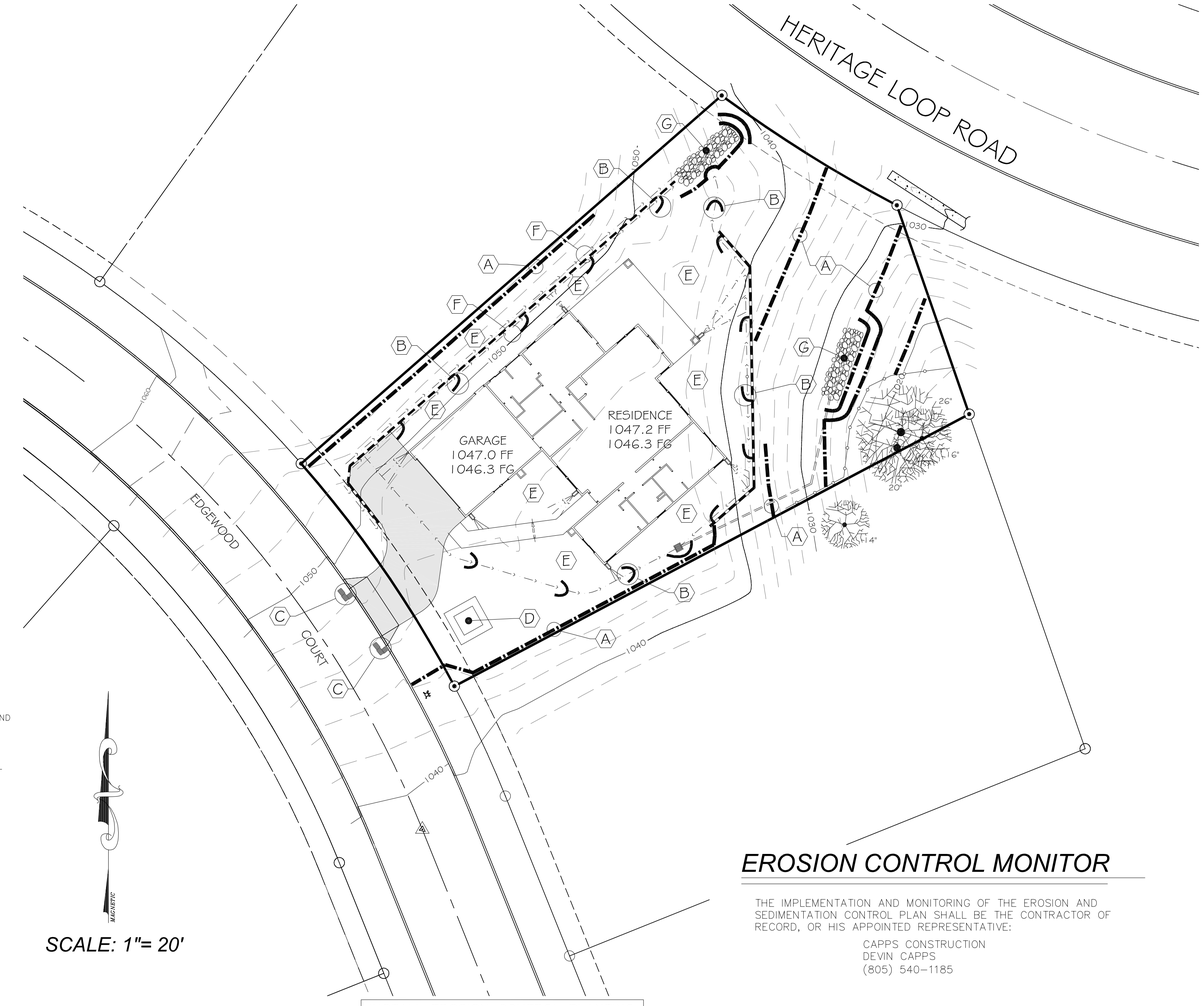
N.T.S.



STORMDRAIN INLET PROTECTION (SE-10)

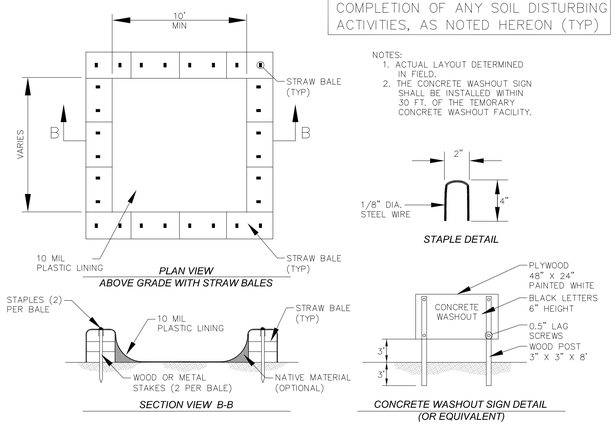
N.T.S.

NOTES:
1. INTENDED FOR SHORT TERM USE.
2. USE TO INHIBIT NON–STORM WATER FLOW.
3. ALLOW THE PROPER MAINTENANCE AND CLEANUP.
4. BAGS MUST BE REMOVED AFTER ADJACENT OPERATION IS COMPLETED.
5. NOT APPLICABLE IN AREAS WITH HIGH SILTS AND CLAYS WITHOUT FIBER FABRIC.



SCALE: 1"= 20'

INSTALL EROSION CONTROL PLANTING, AS SOON AS POSSIBLE, FOLLOWING COMPLETION OF ANY SOIL DISTURBING ACTIVITIES, AS NOTED HEREON (TYP)



CONCRETE WASTE MANAGEMENT (WM-8)

N.T.S.

EROSION CONTROL MONITOR

THE IMPLEMENTATION AND MONITORING OF THE EROSION AND SEDIMENTATION CONTROL PLAN SHALL BE THE CONTRACTOR OF RECORD, OR HIS APPOINTED REPRESENTATIVE:

CAPPS CONSTRUCTION
DEVIN CAPPS
(805) 540–1185

EROSION CONTROL NOTES:

(A) INSTALL FIBER ROLLS (SE–5) PARALLEL TO THE CONTOURS TO PROTECT THE SLOPE BEFORE EROSION CONTROL PLANITNG GERMINATION AND TO SLOW DRAINAGE AND TRAP SEDIMENT, REFER TO SHEET C.6 FOR EROSION CONTROL MBP'S (TYP)

(B) INSTALL FIBER ROLLS (SE–5) IN A CHEVRON SHAPE TO SLOW DRAINAGE AND TRAP SEDIMENT, REFER TO SHEET C.6 FOR EROSION CONTROL MBP'S (TYP)

(C) INSTALL SANDBAG BARRIER (SE–8, SE–10) IN A CHEVRON SHAPE, AT EACH DRAINAGE OUTLET TO SLOW DRAINAGE AND TRAP SEDIMENT, AND INSTALL SAND BAG BARRIER (SE–10) AT CATCH BASIN. REFER TO SHEET C.6 FOR EROSION CONTROL MBP'S (TYP)

(D) INSTALL CONCRETE WASTE MANAGEMENT (WM–8) PRIOR TO THE PLACEMENT OF CONCRETE AND STUCCO, REFER TO WM–8 DETAIL, HEREON (TYP)

(E) INSTALL EROSION CONTROL PLANTING (EC–6, EC–7) OR LANDSCAPING, AS SOON AS POSSIBLE, FOLLOWING COMPLETION OF ANY SOIL DISTURBING ACTIVITIES, AS NOTED HEREON, REFER TO SHEET C.6 FOR EROSION CONTROL MBP'S (TYP)

(F) INSTALL LINED DRAINAGE SWALES (EC–9), ALL SWALES SHALL BE VEGETATED TO MEET COMPLIANCE OF LOW IMPACT DEVELOPMENT REQUIREMENTS, REFER TO SHEET C.6 FOR EROSION CONTROL MBP'S (TYP)

(G) INSTALL VELOCITY DISSIPATION DEVICES (EC–10), REFER TO SHEET C.6 FOR EROSION CONTROL MBP'S (TYP).

ENGINEERING
239-4151
John A. Kudla
Civil Engineering & Structural Design
R.C.E. #50652
610 10th ST. UNIT 'A'
PASO ROBLES, CA. 93446

EROSION CONTROL PLAN

KIRK & CARRIE ALLEN
LOT 106, TRACT 1990-2
EDGEWOOD COURT
PASO ROBLES, CA 93446

REGISTERED PROFESSIONAL ENGINEER JOHN A. KUDLA EXP 9-30-17 50652 CIVIL STATE OF CALIFORNIA

REVISION LOG

REV.	DESCRIPTION	DATE

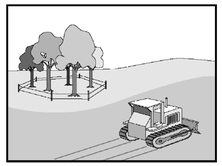
SCALE:	1" = 10'
PROJECT:	CAPPS
DRAWN BY:	FDW
CHECKED BY:	JAK
DATE:	3/28/17

SHEET TITLE:
EROSION CONTROL PLAN

SHEET NUMBER:
C.4

EC-2

Preservation Of Existing Vegetation EC-2



Categories

EC	Erosion Control	☑
SE	Sediment Control	
TC	Tracking Control	
WE	Wind Erosion Control	
NS	Non-Stormwater Management Control	
WM	Waste Management and Materials Pollution Control	

Legend:
☑ Primary Objective
☒ Secondary Objective

Targeted Constituents

Sediment	☑
Nutrients	
Trash	
Metals	
Bacteria	
Oil and Grease	
Organics	

Potential Alternatives

None

Description and Purpose

Carefully planned preservation of existing vegetation minimizes the potential of removing or injuring existing trees, vines, shrubs, and grasses that protect soil from erosion.

Suitable Applications

Preservation of existing vegetation is suitable for use on most projects. Large project sites often provide the greatest opportunity for use of this BMP. Suitable applications include the following:

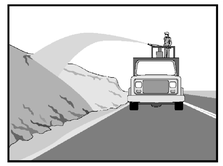
- Areas within the site where no construction activity occurs, or occurs at a later date. This BMP is especially suitable to multi year projects where grading can be phased
- Areas where natural vegetation exists and is designated for preservation. Such areas often include steep slopes, watercourse, and building sites in wooded areas.
- Areas where local, state, and federal government require preservation, such as vernal pools, wetlands, marshes, certain oak trees, etc. These areas are usually designated on the plans, or in the specifications, permits, or environmental documents.
- Where vegetation designated for ultimate removal can be temporarily preserved and be utilized for erosion control and sediment control.

Limitations

- Requires forward planning by the owner/developer,

EC-6

Straw Mulch EC-6



Categories

EC	Erosion Control	☑
SE	Sediment Control	
TC	Tracking Control	
WE	Wind Erosion Control	☒
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WM	Waste Management and Materials Pollution Control	

Legend:
☑ Primary Category
☒ Secondary Category

Targeted Constituents

Sediment	☑
Nutrients	
Trash	
Metals	
Bacteria	
Oil and Grease	
Organics	

Potential Alternatives

EC-3 Hydraulic Mulch
EC-4 Hydroseeding
EC-5 Soil Binders
EC-7 Geotextiles and Mats
EC-8 Wood Mulching
EC-14 Compost Blanket

Description and Purpose

Straw mulch consists of placing a uniform layer of straw and incorporating it into the soil with a studded roller or crimper, or anchoring it with a tackifier or stabilizing emulsion. Straw mulch protects the soil surface from the impact of rain drops, preventing soil particles from becoming dislodged.

Suitable Applications

Straw mulch is suitable for disturbed areas requiring temporary protection until permanent stabilization is established. Straw mulch can be specified for the following applications:

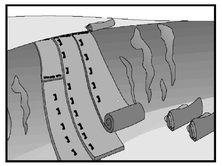
- As a stand-alone BMP on disturbed areas until soils can be prepared for permanent vegetation. The longevity of straw mulch is typically less than six months.
- Applied in combination with temporary seeding strategies
- Applied in combination with permanent seeding strategies to enhance plant establishment and final soil stabilization
- Applied around containerized plantings to control erosion until the plants become established to provide permanent stabilization

Limitations

- Availability of straw and straw blowing equipment may be limited just prior to the rainy season and prior to storms due to high demand.

EC-7

Geotextiles and Mats EC-7



Categories

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SE	Sediment Control	
TC	Tracking Control	
WE	Wind Erosion Control	☒
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WM	Waste Management and Materials Pollution Control	

Legend:
☑ Primary Category
☒ Secondary Category

Targeted Constituents

Sediment	☑
Nutrients	
Trash	
Metals	
Bacteria	
Oil and Grease	
Organics	

Potential Alternatives

EC-3 Hydraulic Mulch
EC-4 Hydroseeding

Description and Purpose

Mattings, or Rolled Erosion Control Products (RECPs), can be made of natural or synthetic materials or a combination of the two. RECPs are used to cover the soil surface to reduce erosion from rainfall impact, hold soil in place, and absorb and hold moisture near the soil surface. Additionally, RECPs may be used to stabilize soils until vegetation is established or to reinforce non-woody surface vegetation.

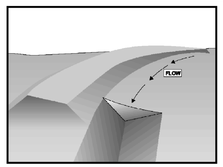
Suitable Applications

RECPs are typically applied on slopes where erosion hazard is high and vegetation will be slow to establish. Mattings are also used on stream banks, swales and other drainage channels where moving water at velocities between 3 ft/s and 6 ft/s are likely to cause scour and wash out new vegetation, and in areas where the soil surface is disturbed and where existing vegetation has been removed. RECPs may also be used when seeding cannot occur (e.g., late season construction and/or the arrival of an early rain season). RECPs should be considered when the soils are fine grained and potentially erosive. RECPs should be considered in the following situations:

- Steep slopes, generally steeper than 3:1 (H:V)
- Slopes where the erosion potential is high
- Slopes and disturbed soils where mulch must be anchored
- Disturbed areas where plants are slow to develop

EC-9

Earth Dikes and Drainage Swales EC-9



Categories

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☒ Secondary Objective

Targeted Constituents

Sediment	☑
Nutrients	
Trash	
Metals	
Bacteria	
Oil and Grease	
Organics	

Potential Alternatives

None

Description and Purpose

An earth dike is a temporary berm or ridge of compacted soil used to divert runoff or channel water to a desired location. A drainage swale is a shaped and sloped depression in the soil surface used to convey runoff to a desired location. Earth dikes and drainage swales are used to divert off site runoff around the construction site, divert runoff from stabilized areas and disturbed areas, and direct runoff into sediment basins or traps.

Suitable Applications

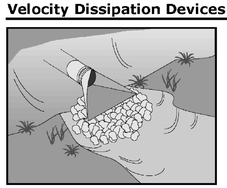
Earth dikes and drainage swales are suitable for use, individually or together, where runoff needs to be diverted from one area and conveyed to another.

- Earth dikes and drainage swales may be used:
  - To convey surface runoff down sloping land
  - To intercept and divert runoff to avoid sheet flow over sloped surfaces
  - To divert and direct runoff towards a stabilized watercourse, drainage pipe or channel
  - To intercept runoff from paved surfaces
  - Below steep grades where runoff begins to concentrate

  Along roadways and facility improvements subject to flood drainage

EC-10

Velocity Dissipation Devices EC-10



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Targeted Constituents

Sediment	☑
Nutrients	
Trash	
Metals	
Bacteria	
Oil and Grease	
Organics	

Potential Alternatives

None

Description and Purpose

Outlet protection is a physical device composed of rock, grouted riprap, or concrete rubble, which is placed at the outlet of a pipe or channel to prevent scour of the soil caused by concentrated, high velocity flows.

Suitable Applications

Whenever discharge velocities and energies at the outlets of culverts, conduits, or channels are sufficient to erode the next downstream reach. This includes temporary diversion structures to divert runon during construction.

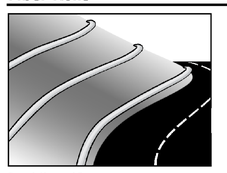
- These devices may be used at the following locations:
  - Outlets of pipes, drains, culverts, slope drains, diversion ditches, swales, conduits, or channels.
  - Outlets located at the bottom of mild to steep slopes.
  - Discharge outlets that carry continuous flows of water.
  - Outlets subject to short, intense flows of water, such as flash floods.
  - Points where lined conveyances discharge to unlined conveyances

Limitations

- Large storms or high flows can wash away the rock outlet protection and leave the area susceptible to erosion.

SE-5

Fiber Rolls SE-5



Categories

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SE	Sediment Control	☒
TC	Tracking Control	
WE	Wind Erosion Control	
NS	Non-Stormwater Management Control	
WM	Waste Management and Materials Pollution Control	

Legend:
☑ Primary Category
☒ Secondary Category

Targeted Constituents

Sediment	☑
Nutrients	
Trash	
Metals	
Bacteria	
Oil and Grease	
Organics	

Potential Alternatives

SE-1 Silt Fence
SE-5 Gravel Bag Berm
SE-8 Sandbag Barrier
SE-14 Biofilter Bags

Description and Purpose

A fiber roll consists of straw, coir, or other biodegradable materials bound into a tight tubular roll wrapped by netting, which can be photodegradable or natural. Additionally, gravel core fiber rolls are available, which contain an imbedded ballast material such as gravel or sand for additional weight when staking the rolls are not feasible (such as use as inlet protection). When fiber rolls are placed at the toe and on the face of slopes along the contours, they intercept runoff, reduce its flow velocity, release the runoff as sheet flow, and provide removal of sediment from the runoff (through sedimentation). By interrupting the length of a slope, fiber rolls can also reduce sheet and rill erosion until vegetation is established.

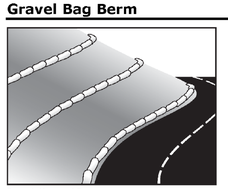
Suitable Applications

Fiber rolls may be suitable:

- Along the toe, top, face, and at grade breaks of exposed and erodible slopes to shorten slope length and spread runoff as sheet flow.
- At the end of a downward slope where it transitions to a steeper slope.
- Along the perimeter of a project.
- As check dams in unlined ditches with minimal grade.
- Down-slope of exposed soil areas.
- At operational storm drains as a form of inlet protection.

SE-6

Gravel Bag Berm SE-6



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☒ Secondary Category

Targeted Constituents

Sediment	☑
Nutrients	
Trash	
Metals	
Bacteria	
Oil and Grease	
Organics	

Potential Alternatives

SE-1 Silt Fence
SE-5 Fiber Roll
SE-8 Sandbag Barrier
SE-14 Biofilter Bags

Description and Purpose

A gravel bag berm is a series of gravel-filled bags placed on a level contour to intercept sheet flows. Gravel bags pond sheet flow runoff, allowing sediment to settle out, and release runoff slowly as sheet flow, preventing erosion.

Suitable Applications

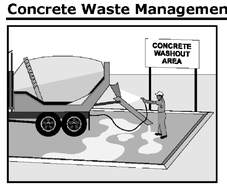
Gravel bag berms may be suitable:

- As a linear sediment control measure:
  - Below the toe of slopes and erodible slopes
  - As sediment traps at culvert/pipe outlets
  - Below other small cleared areas
  - Along the perimeter of a site
  - Down slope of exposed soil areas
  - Around temporary stockpiles and spoil areas
  - Parallel to a roadway to keep sediment off paved areas

  Along streams and channels
- As a linear erosion control measure:
  - Along the face and at grade breaks of exposed and erodible slopes to shorten slope length and spread runoff as sheet flow.

WM-8

Concrete Waste Management WM-8



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TC	Tracking Control	
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WM	Waste Management and Materials Pollution Control	☑

Legend:
☑ Primary Category
☒ Secondary Category

Targeted Constituents

Sediment	☑
Nutrients	
Trash	
Metals	☑
Bacteria	
Oil and Grease	
Organics	

Potential Alternatives

None

Description and Purpose

Prevent the discharge of pollutants to stormwater from concrete waste by conducting washout onsite or offsite in a designated area, and by employee and subcontractor training.

The General Permit incorporates Numeric Effluent Limits (NEL) and Numeric Action Levels (NAL) for pH (see Section 2 of this handbook to determine your project's risk level and if you are subject to these requirements).

Many types of construction materials, including mortar, concrete, stucco, cement and block and their associated wastes have basic chemical properties that can raise pH levels outside of the permitted range. Additional care should be taken when managing these materials to prevent them from coming into contact with stormwater flows and raising pH to levels outside the accepted range.

Suitable Applications

Concrete waste management procedures and practices are implemented on construction projects where:

- Concrete is used as a construction material or where concrete dust and debris result from demolition activities.
- Slurries containing portland cement concrete (PCC) are generated, such as from saw cutting, coring, grinding, grooving, and hydro-concrete demolition

EROSION AND SEDIMENTATION CONTROL DEVICES

CALIFORNIA STORMWATER QUALITY ASSOCIATION (CASQA)

EROSION CONTROL DEVICES

KIRK & CARRIE ALLEN
LOT 106, TRACT 1990-2
EDGEWOOD COURT
PASO ROBLES, CA 93446

ENGINEERING 239-4151
John A. Kudla
Civil Engineering &
Structural Design
R.C.E. #50652
610 10th ST. UNIT 'A' PASO
ROBLES, CA.

REGISTERED PROFESSIONAL ENGINEER 9-30-17 EXP. 50652 CIVIL STATE OF CALIFORNIA

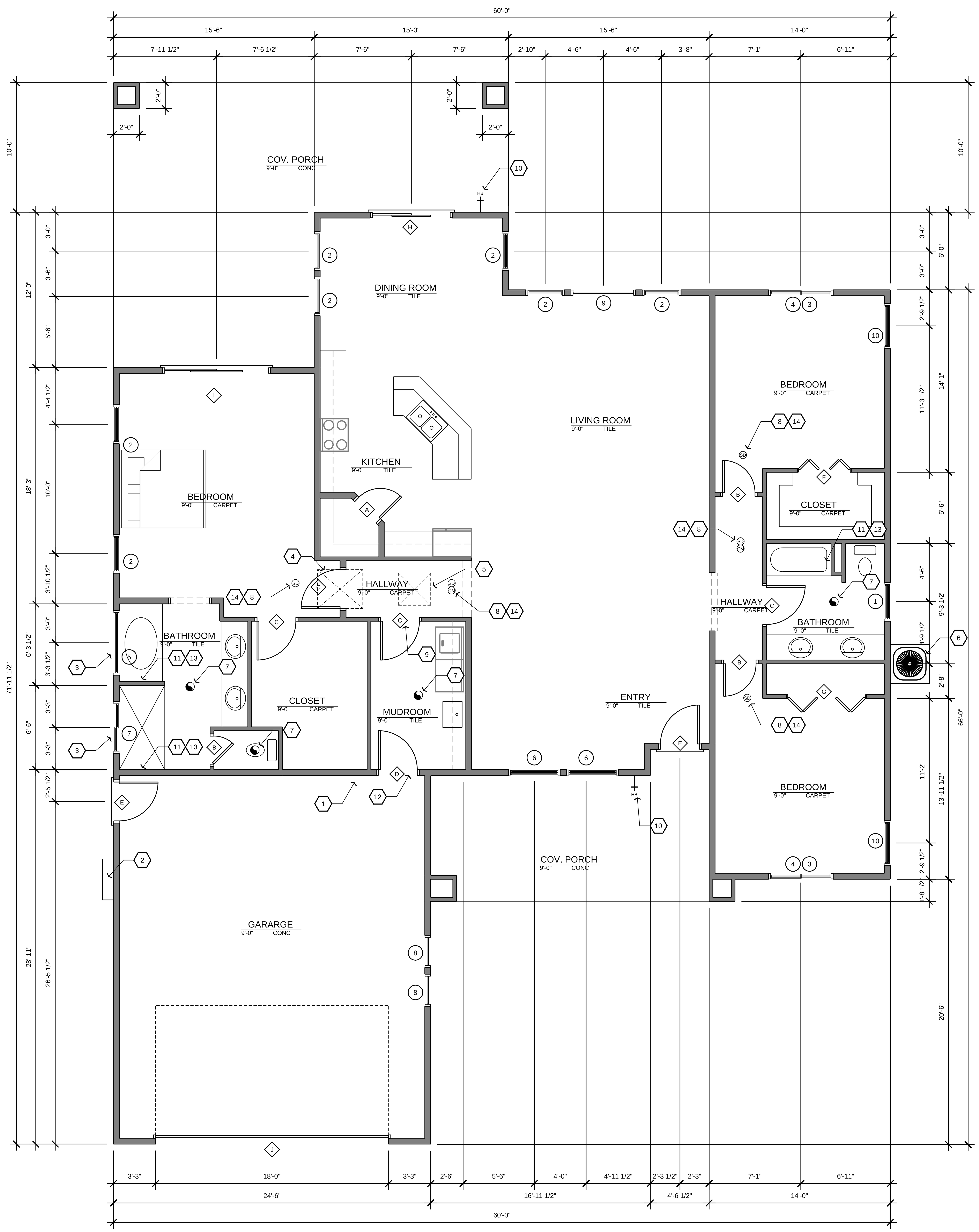
REVISION LOG

REV.	DESCRIPTION	DATE

SCALE:	N.T.S.
PROJECT:	CAPPS
DRAWN BY:	FDW
CHECKED BY:	JAK
DATE:	3/30/17

SHEET TITLE:
EROSION CONTROL DEVICES

SHEET NUMBER:
C.5



FLOOR PLAN (2338 sq.ft.)

1/4" = 1'

FLOOR PLAN CALLOUTS

1. 5/8" TYPE "X" GYPSUM BOARD ON GARAGE SIDE OF COMMON WALL AND CEILING OF GARAGE AND HOUSE. DRYWALL GARAGE COMPLETE (CBC 406.1.4)
   WHEN THE CEILING IN THE GARAGE IS REQUIRED TO BE ENTIRELY PROTECTED, THE WALLS AND / OR BEAMS SUPPORTING THE CEILING ARE TO BE PROTECTED WITH THE EQUIVALENT FIRE RESISTIVE CONSTRUCTION (CBC 714)
2. INSTANT TANKLESS GAS WATER HEATER SHALL BE NATIONALLY LISTED AND BE INSTALLED IN ACCORDANCE WITH THE INSTILLATION INSTRUCTIONS THAT WERE APPROVED AS PART OF THEIR LISTING. FUEL-BURNING WATER HEATERS MAY BE INSTALLED IN A CLOSET LOCATED IN THE BEDROOM OR BATHROOM PROVIDED THE CLOSET IS EQUIPPED WITH A LISTED, GASKETED DOOR ASSEMBLY AND A LISTED SELF-CLOSING DEVICE. THE DOOR ASSEMBLY SHALL BE INSTALLED WITH A THRESHOLD AND BOTTOM DOOR SEAL.
3. SAFETY GLAZING REQUIRED BUT NOT LIMITED TO GLAZING IN FIXED PANELS ADJACENT TO A DOOR WHERE NEAREST EXPOSED EDGE OF THE GLAZING IS WITHIN A 24" ARC OF EITHER VERTICAL EDGE OF THE DOOR IN A CLOSED POSITION AND WHERE THE BOTTOM EDGE OF THE GLAZING IS LESS THAN 60" ABOVE WALKING SURFACE. CBC SECTION 2406.3 ALSO WITHIN 18" OF FLOORS, WITHIN TUB - SHOWER ENCLOSURES, WITHIN HOT - TUB WHIRLPOOL, SAUNA AND STEAM ROOM AND GLAZING IN ANY PORTION OF A BUILDING WALL ENCLOSING THESE COMPARTMENTS WHERE THE BOTTOM EDGE OF THE GLAZING IS LESS THAN 60" ABOVE A STANDING SURFACE AND DRAIN INLET.
4. F.A.U. IN ATTIC ON PLATFORM. PROVIDE SWITCH, LIGHT, AND OUTLET NEAR ACCESS AND UNIT.
5. PROVIDE 30" X 30" ATTIC ACCESS TO MECHANICAL UNIT. A 22" X 30" ACCESS OPENING CAN BE USED IF A LETTER FROM THE MANUFACTURER STATING THAT ALL COMPONENTS OF F.A.U. UNIT CAN FIT THROUGH AN OPENING OF THAT SIZE. ACCESS TO BE WITHIN 20' OF F.A.U. AND HAVE A CONTINUOUS 24" WIDE WALKWAY. ALSO PROVIDE 30" CLEAR UNOBSTRUCTED WORKING SPACE IN FRONT OF F.A.U.
6. AIR CONDENSING UNIT ON CONCRETE PAD. PROVIDE 5'-0" MINIMUM CLEAR PASSAGE AROUND UNIT.
7. ROOMS CONTAINING BATHTUBS, SHOWERS, SPAS AND SIMILAR BATHING FIXTURES SHALL BE MECHANICALLY VENTILATED IN ACCORDANCE WITH THE CMC 403.7 & T-4.4.
8. APPROVED MULTIPLE PURPOSE CARBON MONOXIDE / SMOKE DETECTOR INSTALLED AS REQUIRED AND AS INDICATED. CARBON MONOXIDE / SMOKE DETECTOR COMBINED ALARMS SHALL BE HARDWIRED WITH BATTERY BACK-UP. (R315.3.1) CARBON MONOXIDE ALARMS SHALL BE LOCATED OUTSIDE OF EACH SEPARATE DWELLING UNIT SLEEPING AREA IN THE IMMEDIATE VICINITY OF THE BEDROOMS, ON EVERY LEVEL OF A DWELLING UNIT INCLUDING THE BASEMENT. WHEN MORE THAN ONE CARBON MONOXIDE ALARM IS REQUIRED TO BE INSTALLED, THE ALARMS SHALL BE INTERCONNECTED IN A MANNER THAT ACTIVATION OF ONE WILL ACTIVATE ALL PER CRC R315.1.2. CARBON MONOXIDE ALARMS SHALL BE LISTED PER UL 2034 AND CARBON MONOXIDE DETECTORS SHALL BE LISTED PER UL 2075. FOR ALTERATIONS, REPAIRS, OR ADDITIONS EXCEEDING $1,000, EXISTING DWELLING/ SLEEPING UNITS THAT HAVE ATTACHED GARAGES OR FUEL-BURNING APPLIANCES SHALL BE PROVIDED WITH A CARBON MONOXIDE ALARM.
9. PROVIDE MIN. 100 SQ. INCH OPENING IN DOOR OF A LAUNDRY CLOSET OR PROVIDE OTHER APPROVED MEANS TO MAKE UP AIR PER CMC 504.3.1
10. ALL HOSE BIBS TO HAVE NON REMOVABLE BACKFLOW PREVENTION DEVICES PER CPC 603.3.7
11. INDIVIDUAL VALVES OF THE PRESSURE BALANCE OR THE THERMOSTATIC MIXING VALVE TYPE ARE REQUIRED AT THE SHOWERS AND TUB-SHOWER COMBINATION PER CPC 420
12. GARAGE DOOR SHALL BE PROTECTED BY A 1-3/8" SELF-CLOSING, SELF-LATCHING SOLID CORE DOOR, OR A SELF-CLOSING DOOR HAVING A FIRE-PROTECTION RATING OF NOT LESS THAN 20 MINUTES. CBC406.1.4
13. SHOWERS AND WALLS ABOVE BATHTUBS WITH SHOWER HEADS SHALL BE FINISHED WITH A SMOOTH, NONABSORBENT SURFACE TO A HEIGHT NOT LESS THAN 70" ABOVE THE DRAIN INLET. CBC 1210.3
14. SMOKE DETECTORS HARDWIRED AND INTERCONNECTED TO ONE ANOTHER. PROVIDE BATTERY BACKUP TO ALL SMOKE DETECTOR UNITS (TYP). CBC 907.2.10.2 A SINGLE ALARM SHALL ACTIVATE ALL ALARMS AND BE CLEARLY AUDIBLE. CBC 907.2.10.3

FIXTURE FLOW RATE REQUIRMENTS:

THE FOLLOWING FIXTURES SHALL BE OF WATER CONSERVATION:

RESIDENTIAL:

WATER CLOSETS:	1.28 GALLON PER FLUSH MAXIMUM
SHOWER HEAD FLOW:	2.0 GALLON PER MINUTE AT 80 PSI
LAVATORY / SINK FIXTURE:	1.5 GALLON PER MINUTE AT 60 PSI
KITCHEN FAUCETS:	2.2 GALLON PER MINUTE AT 60 PSI

NON COMPLIANT FIXTURES MEANS ANY OF THE FOLLOWING:

RESIDENTIAL:

ANY TOILET MANUFACTURED TO USE MORE THAN 1.6 GAL OF WATER PER FLUSH.
ANY SHOWERHEAD MANUFACTURED WITH 2.5 GALLONS PER MINUTE.
ANY INTERIOR FAUCET THAT EMITS MORE THAN 2.2 GALLONS PER MINUTE.

WINDOW SCHEDULE

SYM.	QTY.	SIZE	NOTES	
1	1	4020	SH	WINDOW AT 7'-6"
2	8	3050	SH	WINDOW AT 7'-6"
3	2	5010	SL	WINDOW AT 3'-6"
4	2	5040	FX	WINDOW AT 7'-6"
5	1	50" x 50"	GLASS BLK	WINDOW AT 7'-6"
6	2	4050	SH	WINDOW AT 7'-6"
7	1	4010	GLASS BLOCK	WINDOW AT 7'-6"
8	2	2650	FX	WINDOW AT 7'-6"
9	1	5050	FX	WINDOW AT 7'-6"
10	2	3640	SH	WINDOW AT 7'-6"

EXTERIOR WINDOWS, WINDOW WALLS, GLAZED DOORS AND GLAZED OPENING WITHIN EXTERIOR DOORS SHALL BE INSULATING-GLASS UNITS WITH A MINIMUM OF ONE TEMPERED PANE OR GLASS BLOCK UNITS OR HAVE A FIRE-RESISTANCE RATING OF NOT LESS THAN 20 MINUTES

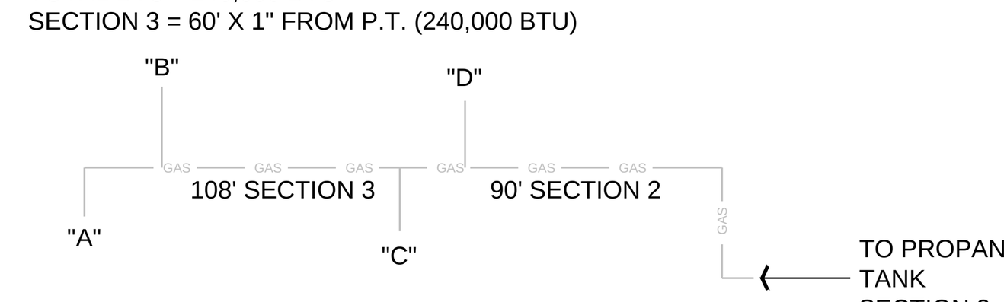
DOOR SCHEDULE

SYM.	QTY.	SIZE	NOTES	
A	1	2480	INT	
B	3	2680	INT	
C	4	3080	INT	
D	1	3080	FIRE RATED SELF CLOSING	
E	2	3080	EXT	
F	1	4080	BIFOLD	
G	1	6080	BIFOLD	
H	1	60710	SL GL	
I	1	80710	SL GL	
J	1	18'-0" x 9'-0"	GARAGE	

GAS LINE SIZES

GAS LINE SIZES FOR THIS PROJECT PER CPC 2010 CHAPTER 12 TABLE 1216.2(19) ARE AS FOLLOWS:

- OUTLET A- OVEN (65,000 BTU)= 108' X ½"
- OUTLET B- FAU (40,000 BTU)= 100' X ½"
- SECTION 1 = 108' X ¾" FROM OUTLET B TO P.T. (105,000 BTU)
- OUTLET C- DRYER (35,000 BTU)= 90' X ½|
- OUTLET D - W/H (200,000 BTU)= 85' X 1"
- SECTION 2 = 90' X 1" FROM OUTLET E TO P.T. (235,000 BTU)
- TOTAL BTU = 240,000 BTU
- SECTION 3 = 60' X 1" FROM P.T. (240,000 BTU)



DRAFTING & DESIGN

CAD DESIGN - AS BUILTS
RESIDENTIAL PLANS
610 10TH ST. SUITE "D"
PASO ROBLES, CA
93446
BUS.#(805)237-0850
FAX #(805)237-0480

PLAN PREPARED FOR:

KIRK & CARRIE ALLEN
LOT 106 TRACT 1990-2
PASO ROBLES, CA 93446

REVISION LOG

REV.	DESCRIPTION	DATE

PROJECT NO. ----

FILE NAME A-2.1 FLOOR PLAN.DWG

DRAWN BY JJK

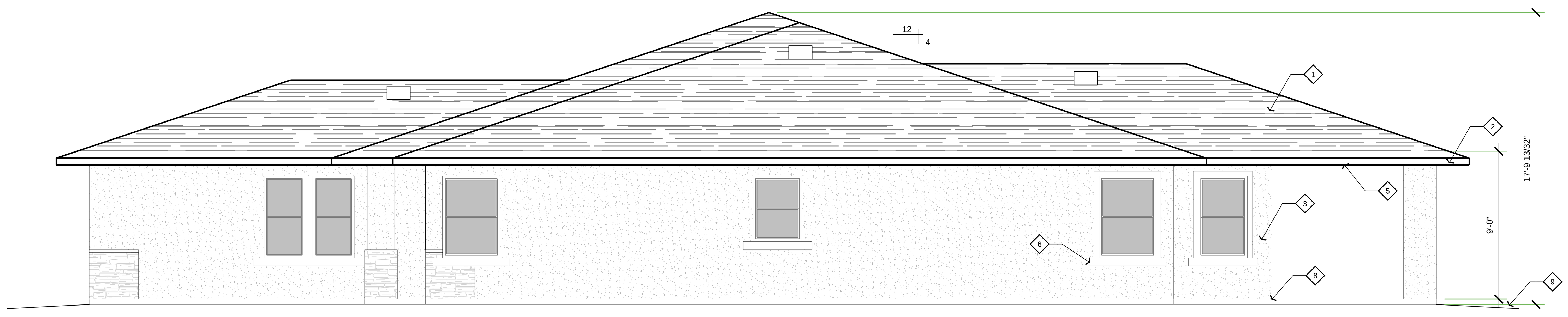
DATE 3/31/2017 8:00 AM

SHEET TITLE:

FLOOR PLAN

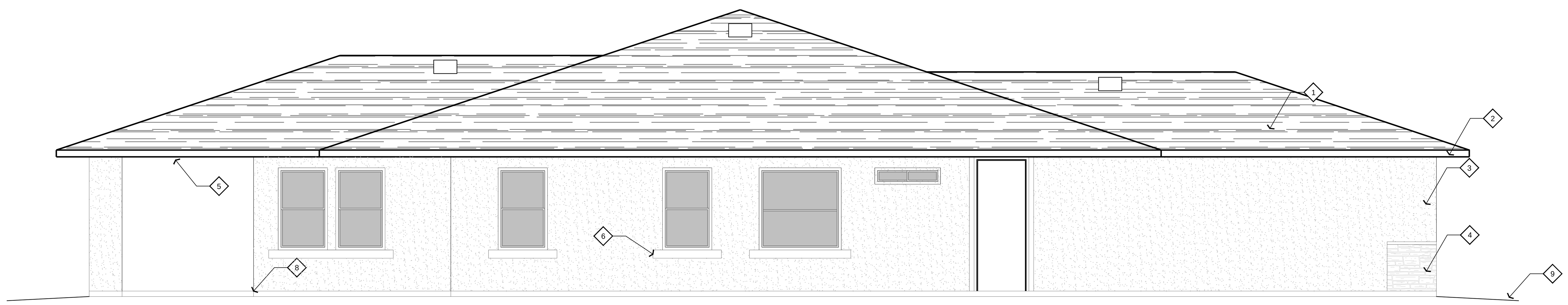
SHEET NUMBER:

A-2.1



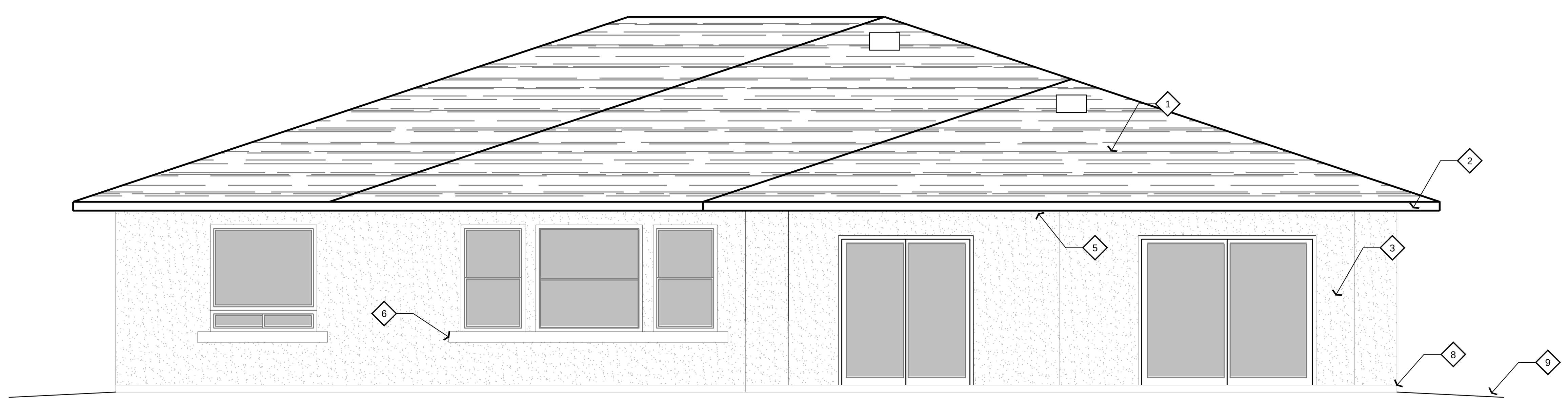
RIGHT ELEVATION

1/4" = 1'



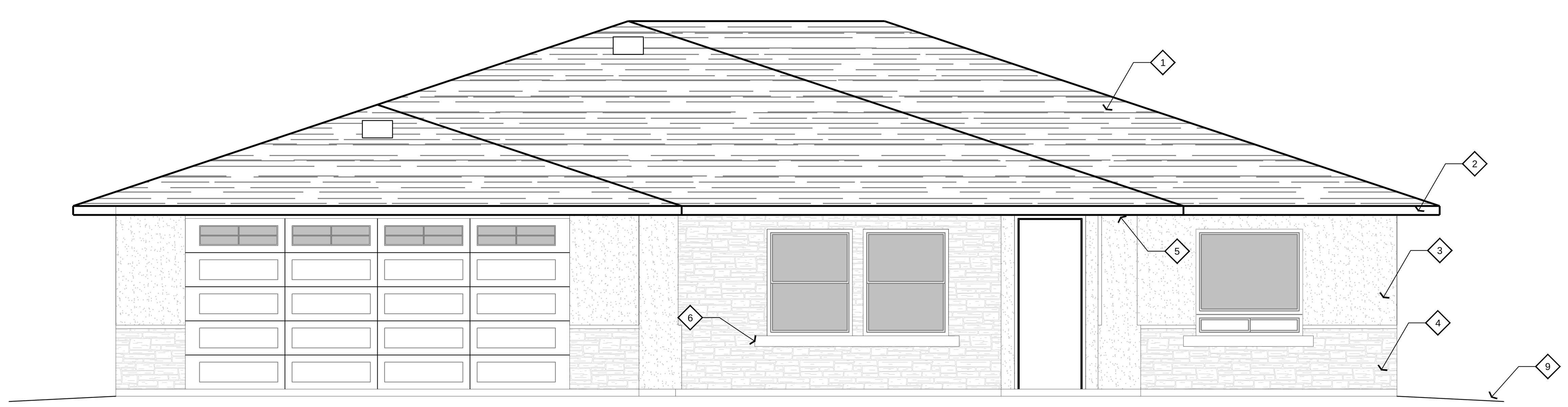
LEFT ELEVATION

1/4" = 1'



REAR ELEVATION

1/4" = 1'



FRONT ELEVATION

1/4" = 1'

ELEVATION CALLOUTS

1. COMPOSITION SHINGLE ROOFING OF MIN OF CLASS A OVER 30 LB MINIMUM ROOFING FELT (TYP)
2. 2 X 8 HEM FIR FASCIA (TYP)
3. 7/8" CEMENT PLASTER O/ 3.4# RIBBED LATH AND APPROVED BUILDING PAPER O/ 5/8" PLYWOOD SHEATHING W/ 8d @ 6"-6"-12" ON HOR. SURFACE OF EXTERIOR (TYP)
4. STONE SIDING OVER APPROVED MOISTER BARRIER
5. NONCOMBUSTIBLE OR IGNITION RESISTANT MATERIAL ON EXPOSED UNDERSIDE. WHERE EXPOSED, WOOD SHALL BE FIRE RETARDANT-TREATED
6. 2X TRIM AROUND ALL DOORS AND WINDOWS AND AT ALL CORNERS (TYP)
7. ATTIC VENTILATION CALCULATIONS: TOTAL ATTIC AREA = 3760 SQ FT
   REQUIRED ATTIC VENTILATION = 3760 / 300 = 12.53 SQ. FT. = 1804 SQ. IN.
   USE (10) 14" x 24" LOMANCO DORMER (NFVA = 90) = 900 SQ. IN.
   USE (23) 22"x3.5" UNDER EAVE VENTS (NFVA = 41) = 943 SQ. IN.
   USE VULCAN VENTS OR APPROVED EQUAL TO RESIST INTRUSION OF FLAME & EMBER INTO ATTIC AREA.
8. 24 GA. WEEP SCREED FLASHING AT BASE OF CEMENT PLASTER AND INSTALLED PER CBC2512.1.2. WEEP SCREED SHALL BE CORROSION RESISTANT WITH A MINIMUM VERTICAL ATTACHMENT FLANGE OF 3-1/2" AND SHALL BE PROVIDED AT OR BELOW THE FOUNDATION PLATE LINE. THE SCREED SHALL BE PLACED A MINIMUM OF 4" ABOVE THE EARTH GRADE AND 2" MINIMUM ABOVE PAVED SURFACE
9. SLOPE AWAY FROM BUILDING 5% FOR 10'-0" MINIMUM (TYP)

ELEVATION NOTES

BUILDING INSULATION:

EXTERIOR WALL:	R-21 MINIMUM(TYP)
CEILING:	R-38 MINIMUM(TYP)

INTERIOR FINISH MATERIAL:

WALLS:	1/2" GYPSUM BOARD
CEILING:	5/8" GYPSUM BOARD (GARAGE WALLS & CEILING USE 5/8" TYPE "X" BOARD AND FOR USABLE AREA UNDER STAIRS)

WALL FRAMING:

EXTERIOR WALLS:	2X6 STUD WALLS @ 16" O/C
INTERIOR WALLS:	2X4 STUD WALLS @ 16" O/C

HEADERS UNLESS OTHERWISE NOTED:

EXTERIOR BEARING:	6X12 D.F. #1 (U.O.N.)
EXTERIOR NON-BEARING:	6X12 D.F. #1 (U.O.N.)
INTERIOR BEARING:	4X12 D.F. #2 (U.O.N.)
INTERIOR NON-BEARING:	4X8 D.F. #2 (U.O.N.)

DRAFTING & DESIGN
CAD DESIGN - AS BUILTS
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PLAN PREPARED FOR:
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PASO ROBLES, CA 93446

REVISION LOG

REV.	DESCRIPTION	DATE

PROJECT NO. ----

FILE NAME A-3.1 ELEVATIONS.DWG

DRAWN BY JJK

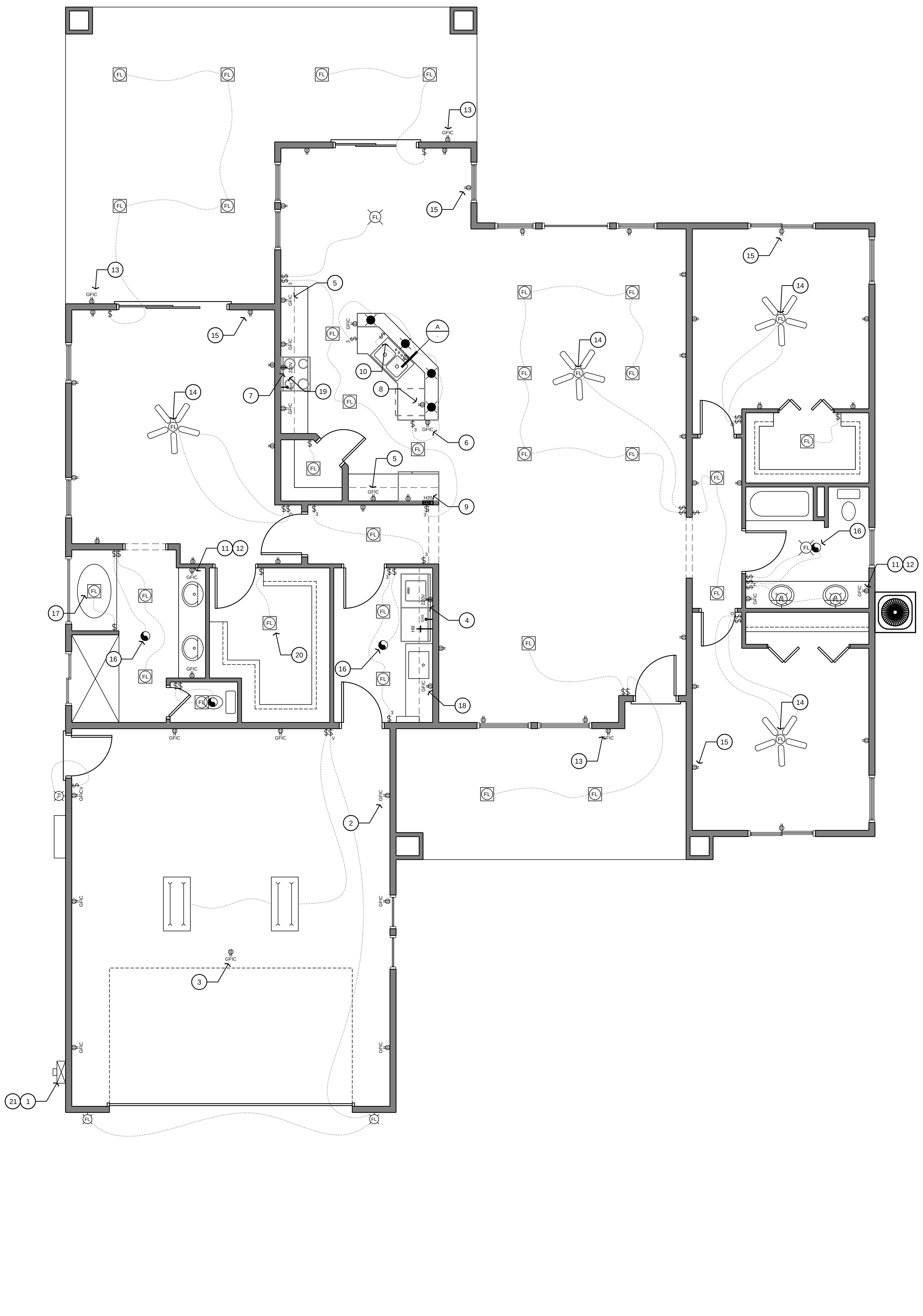
DATE 3/31/2017 8:00 AM

SHEET TITLE:

ELEVATIONS

SHEET NUMBER:

A-3.1

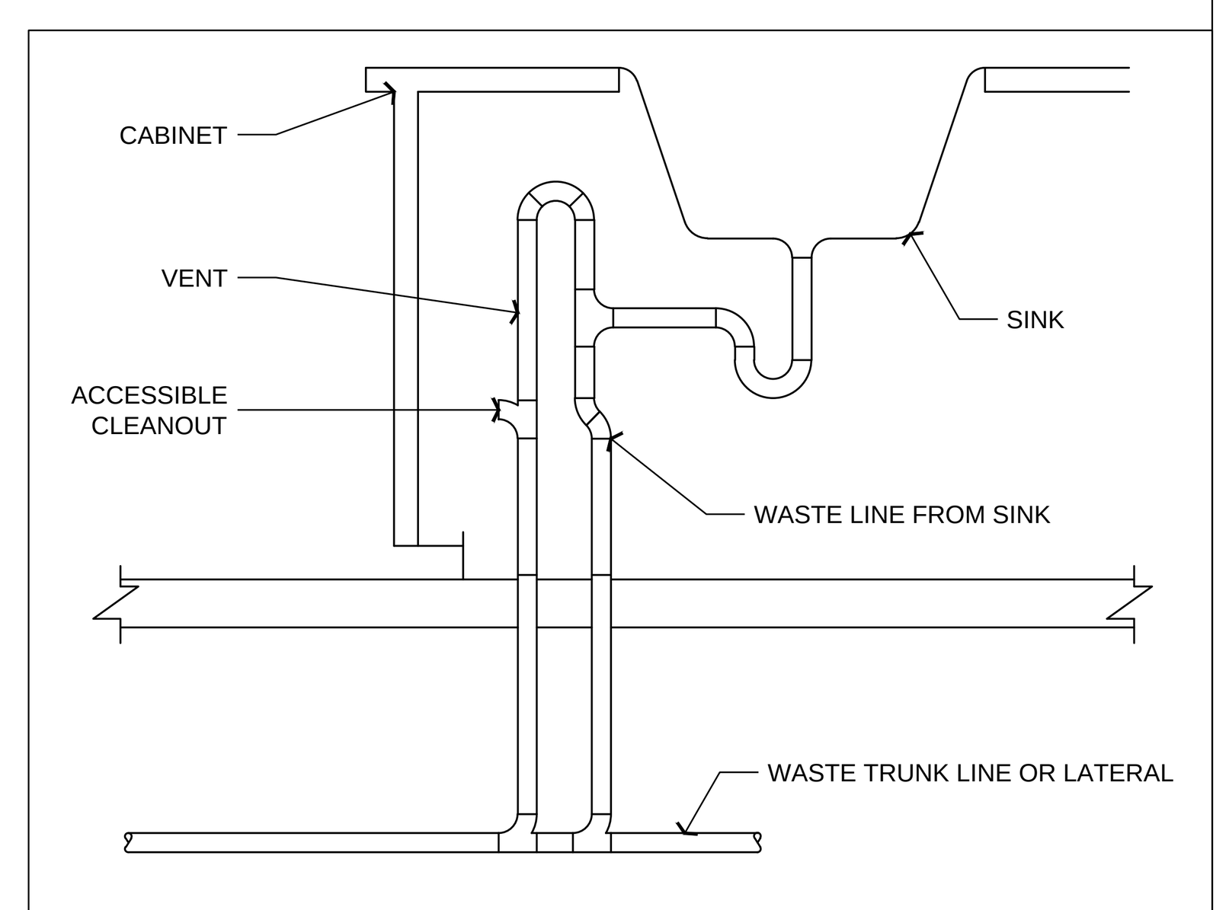


FLOOR PLAN (2478 sq.ft.)

1/4" = 1'

ELECTRICAL NOTES

1. FOR NEW DWELLING UNITS, INSTALL A LISTED RACEWAY TO ACCOMMODATE A DEDICATED 208#240 -VOLT BRANCH CIRCUIT. THE RACEWAY SHALL NOT BE LESS THAN TRADE SIZE 1, AND SHALL ORIGINATE AT THE MAIN SERVICE OR SUB-PANEL AND TERMINATE TO A LISTED CABINET, BOX, OR OTHER ENCLOSURE, INACCESSIBLE OR CONCEALED AREAS OR SPACES. THE SERVICE PANEL OR SUB-PANEL SHALL PROVIDE CAPACITY TO INSTALL A 40-AMPERE MINIMUM DEDICATED BRANCH CIRCUIT AND SPACE(S) RESERVED TO PERMIT INSTALLATION OF AN OVER-CURRENT PROTECTIVE DEVICE. [CGBSC 4.106.4.1] SEE ELECTRICAL CALLOUT #21 FOR LOCATION.
2. FOR THE REQURIED EV CHARGING OUTLET, THE SERVICE PANEL OR SUBPANEL SERVICE DIRECTORY SHALL IDENTIFY THE OVERCURRENT PROTECTIVE DEVICE SPACE RESERVED FOR FUTURE EV CHARGING AS "EV CAPABLE", AND THE RACEWAY TERMINATION LOCATION SHALL BE PERMANENTLY AND VISIBLY MARKED AS "EV CAPABLE" [CGBSC 4.408.1, 4.408.2]



A ISLAND VENT DETAIL

ELECTRICAL CALLOUTS

1. PROVIDE A 200 AMP MINIMUM ELECTRIC SUB-PANEL WITH #4 UPPER GROUND TO FOUNDATION
2. GFIC OUTLETS ON ALL ABOVE COUNTER OUTLETS IN GARAGE MOUNTED AT 44" ABOVE FINISH FLOOR (TYP)
3. CEILING MOUNTED OUTLET FOR GARAGE DOOR OPENER. PROVIDE AND INSTALL APPROVED GARAGE DOOR OPENER WITH REMOTE CONTROL
4. PROVIDE GAS, 220V OUTLET, AND 110V OUTLET TO WASHER AND DRYER
5. GFIC OUTLETS ON ALL ABOVE COUNTER OUTLETS IN KITCHEN MOUNTED AT +44"ABOVE FINISH FLOOR (TYP). OUTLETS SHALL BE LOCATED NO FARTHER THAN 24" AWAY FROM ANY POINT ALONG COUNTER AND ON ALL COUNTER AREAS WIDER THAN 12". KITCHEN, DINING ROOM AND PANTRY SHALL HAVE A MINIMUM OF TWO 20 AMP SMALL APPLIANCE BRANCH CIRCUITS SHALL BE PROVIDED FOR ALL RECEPTACLE OUTLETS.
6. ON ANY PENINSULA, EATING BAR, OR ISLAND, GFIC OUTLETS SHALL BE LOCATED AT +27" ABOVE FINISH FLOOR AND SHALL BE LOCATED NO FARTHER THAN 24" AWAY FROM ANY POINT ALONG PENINSULA, EATING BAR OR ISLAND (TYP)
7. PROVIDE GAS, 220V OUTLET, AND 110V OUTLET TO STOVE, COOKTOP, AND/OR OVENS (TYP). ALSO PROVIDE ELECTRICAL FOR EXHAUST HOOD ABOVE COOKTOP (TYP)
8. PROVIDE OUTLET FOR DISHWASHER
9. PROVIDE 110V OUTLET AT +42" ABOVE FINISHED FLOOR AND WATER FOR ICE MAKER AT REFRIGERATOR
10. PROVIDE OUTLET AND SWITCH FOR DISPOSAL
11. GFIC OUTLETS ON ALL ABOVE COUNTER OUTLETS IN BATHROOMS MOUNTED AT 42" ABOVE FINISH FLOOR (TYP)
12. BATHROOM RECEPTACLES SHALL BE ON A SEPARATE 20AMP CIRCUIT WITH NO OTHER OUTLETS. BOTH OUTLETS MAY BE ON THE SAME CIRCUIT. 1996 NEC 210-52 (D)
13. WATER-PROOF GFIC OUTLETS AT 18" ABOVE FINISH FLOOR FOR ALL EXTERIOR OUTLETS(TYP).
14. PROVIDE BLOCKING AT CEILING FAN AND LIGHTS. PROVIDE SEPARATE SWITCH FOR LIGHTS & FAN. USE AN APPROVED ELECTRICAL BOX DESIGNED TO SUPPORT CEILING FAN. CEILING FANS WEIGHING IN EXCESS OF 35 POUNDS SHALL BE SUPPORTED AS REQUIRED BY SEC 370-23. 422-18.
15. AFCI PROTECTION IS REQUIRED ON ALL CIRCUITS NOT JUST RECEPTACLE OUTLET CIRCUITS IN CERTAIN ROOMS AS REQUIRED BY THE 2013 ELECTRICAL CODE. ALL TO BE TAMPER RESISTANT.
16. ROOMS CONTAINING BATHTUBS, SHOWERS, SPAS AND SIMILAR BATHING FIXTURES SHALL BE MECHANICALLY VENTILATED IN ACCORDANCE WITH THE CMC 403.7 & T-4.4. FANS TO BE 50 CFM MINIMUM EXHAUST FAN AND ENERGY-STAR COMPLIANT. FAN SWITCH MUST BE HUMIDISTAT CONTROLLED AND BE LABELED WHOLE HOUSE FAN.
17. PENDENT LIGHTS, CEILING FANS & TRACK LIGHTING ARE PROHIBITED IN THE AREA ABOVE BATHTUBS AND SHALL BE LISTED FOR WET CONDITIONS.
18. LAUNDRY RECEPTACLES SHALL BE ON A SEPARATE 20AMP CIRCUIT WITH NO OTHER OUTLETS. BOTH OUTLETS MAY BE ON THE SAME CIRCUIT. 1996 NEC 210-52 (D)
19. EACH KITCHEN SHALL HAVE AN EXHAUST FAN DUCTED TO THE OUTSIDE WITH A MINIMUM VENTILATION RATE OF 100 CFM. THE DUCTING SHALL BE SIZED ACCORDING TO ASHRAE STANDARD 62.2 TABLE 7.1. THIS IS AN OUTLINE OF THE KITCHEN HOOD
20. LIGHT FIXTURES PERMITTED IN CLOSETS ARE AS FOLLOWS : (CEC 410.6)
    A SURFACE MOUNTED OR RECESSED INCANDESCENT FIXTURE WITH A COMPLETELY ENCLOSED LAMP; A SURFACE MOUNTED OR RECESSED FLOURESCENT FIXTURE.
21. PROVIDE SCHEDULE 40 PVC CONDUIT FROM THE LOAD SIDE OF THE NEW ELECTRICAL PANEL DISCONNECT TO ATTIC AREA. CONDUIT SIZE SHALL BE AS FOLLOWS:
    100A 20 AMPS @ 120 VOLTS (1) ¾" CONDUIT
    120A 24 AMPS @ 120 VOLTS (1) ¾" CONDUIT
    150A 30 AMPS @ 120 VOLTS (1) ¾" CONDUIT
    200A 40 AMPS @ 120 VOLTS (1) 1" CONDUIT
    400A 80 AMPS @ 120 VOLTS (1) 1¼" CONDUIT

**** ALL LIGHTING TO BE HIGH EFFICACY UNLESS NOTED OTHERWISE.

**** LUMINAIRES RECESSED INTO INSULATED CEILING SHALL MEET ALL OF THE REQUIREMENTS LISTED IN CEnC SECTION 150.0(k)(8).

LEGEND

- CEILING MOUNTED EXHAUST FAN TO EXTERIOR
- 115 V DUPLEX RECEPTACLE @ +18" AFF. U.O.N.
- GFI — 115 V GFIC DUPLEX RECEPTACLE
- WP — 115 V WATER PROOF GFIC OUTLET
- AFCI — 115 V ARCH FAULT CIRCUIT INTERRUPTER OUTLET
- 3-WAY SWITCH
- 4- WAY SWITCH
- SINGLE POLE SWITCH
- SWITCH w/ DIMMER CONTROL
- SWITCH W/ OCCUPANT SENSOR
- SMOKE DETECTOR, HARD-WIRED TOGETHER
- GAS STUB (SIZE AS REQ'D)
- ELECTRIC SUB-PANEL
- FAN
- CARBON MONOXIDE DETECTOR
- HOSE BIB
- FLOOD LIGHT
- RECESSED CAN LIGHT FIXTURE, FLUORESCENT
- RECESSED CAN LIGHT FIXTURE, STD RECESSED
- WALL MOUNTED LIGHT FIXTURE
- WALL MOUNTED EXTERIOR FIXTURE, DOWNCAST
- CEILING MOUNTED PENDANT FIXTURE
- CEILING MOUNTED LIGHT FIXTURE
- CEILING MOUNTED FAN w/ LIGHT FIXTURE PROVIDE SEPARATE SWITCH FOR FAN & LIGHT
- FL — 2X4 FLUORESCENT LIGHT FIXTURE

CONT. WHOLE BUILDING VENTILATION RATE

PER TABLE 4-7 2008 RESIDENTIAL COMPLIANCE MANUAL

2478 SQ. FT. WITH 3 BDRMS
Qfan = 0.01(2478) + 7.5(3+1)
Qfan = 24.78 + 7.5(4)
Qfan = 24.78 + 30
Qfan = 54.78 CFM

CONTINUOUS FAN FLOW REQUIRED (CFM) = 54.78 CFM
USE 4" Ø MIN DUCT, 70' ALLOWED FOR FLEX DUCT - 105' ALLOWED FOR SMOOTH DUCT. DEDUCT 15' OF ALLOWABLE DUCT LENGTH FOR EACH TURN, ELBOW, OR FITTING.

BATH FAN NOTE:
A BATHROOM IS DEFINED AS ANY ROOM CONTAINING A BATHTUB, A SHOWER, A SPA, OR SIMILAR SOURCE OF MOISTURE. EACH BATHROOM IS REQUIRED TO HAVE AN EXHAUST FAN DUCTED TO THE OUTSIDE WITH A MINIMUM VENTILATION RATE OF 50 CFM. THE DUCTING FOR THE EXHAUST FAN SHALL BE SIZED ACCORDING TO ASHRAE STANDARD 62.2, TABLE 7.1.

SOUND RATING AND CONTINUOUS OPERATION:
THE WHOLE BUILDING VENTILATION EXHAUST FAN WILL OPERATE CONTINUOUSLY, AND IS REQUIRED TO BE RATED FOR SOUND AT A MAXIMUM OF 1 SONE. THIS EXHAUST FAN CAN BE CONTROLLED BY A STANDARD ON/OFF SWITCH, BUT THE SWITCH MUST BE LABELED TO INFORM THE HOME OCCUPANT THAT THE EXHAUST FAN IS THE WHOLE-BUILDING VENTILATION EXHAUST FAN THAT IS INTENDED TO RUN CONTINUOUSLY. NO SPECIFIC WORDING IS MANDATED, BUT THE WORDING NEEDS TO MAKE CLEAR WHAT THE CONTROL IS FOR AND THE IMPORTANCE OF OPERATING THE SYSTEM THIS MAY BE AS SIMPLE AS "VENTILATION CONTROL" OR MIGHT INCLUDE WORDING SUCH AS: "OPERATE WHEN THE HOUSE IS IN USE" OR :KEEP ON EXCEPT WHEN GONE OVER 7 DAYS" OR FAN IS TO BE LEFT ON TO INSURE INDOOR AIR QUALITY".

LIGHTING NOTES

THE REQUIREMENTS APPLY ONLY TO PERMANENTLY INSTALLED LUMINAIRES, I.E., LUMINAIRES THAT ARE PART OF THE HOUSE, AS OPPOSED TO PORTABLE LUMINAIRES SUCH AS TORCHIERES OR TABLE LAMPS THAT ARE PROVIDED BY THE OCCUPANT. PERMANENTLY INSTALLED LUMINAIRES INCLUDE CEILING LUMINAIRES, CHANDELIERS, VANITY LAMPS, WALL SCONCES AND ANY OTHER TYPE OF LUMINAIRE THAT IS A PERMANENT PART OF THE HOUSE.

THE NEW REQUIREMENTS MAY BE SUMMARIZED AS FOLLOWS:

- KITCHENS. AT LEAST HALF THE INSTALLED WATTAGE OF LUMINAIRES IN KITCHENS SHALL BE HIGH EFFICACY AND THE ONES THAT ARE NOT MUST BE SWITCHED SEPARATELY.
- LIGHTING IN BATHROOMS, GARAGES, LAUNDRY ROOMS AND UTILITY ROOMS. ALL LUMINAIRES SHALL BE HIGH EFFICACY AND SHALL BE CONTROLLED BY AN OCCUPANT SENSOR.
- OTHER ROOMS. ALL LUMINAIRES SHALL EITHER BE HIGH EFFICACY OR SHALL BE CONTROLLED BY AN OCCUPANT SENSOR OR DIMMER. CLOSETS THAT ARE LESS THAN 70 SQUARE FOOT ARE EXEMPT FROM THIS REQUIREMENT.
- OUTDOOR LIGHTING. ALL LUMINAIRES MOUNTED TO THE BUILDING OR TO OTHER BUILDINGS ON THE SAME LOT SHALL BE HIGH EFFICACY LUMINAIRESOR SHALL BE CONTROLLED BY A PHOTOCONTROL/MOTION SENSOR COMBINATION.
- COMMON AREAS OF MULTIFAMILY BUILDINGS. ALL LUMINAIRES IN THE COMMON AREAS OF MULTIFAMILY BUILDINGS SHALL EITHER BE HIGH EFFICACY OR SHALL BE CONTROLLED BY AN OCCUPANT SENSOR.

LUMINAIRES THAT ARE RECESSED INTO INSULATED CEILINGS ARE REQUIRED TO BE RATED FOR INSULATION CONTACT ("IC-RATED") SO THAT INSULATION CAN BE PLACED OVER THEM. THE HOUSING OF THE LUMINAIRE SHALL BE AIRTIGHT TO PREVENT CONDITIONED AIR ESCAPING INTO THE CEILING CAVITY OR ATTIC, UNCONDITIONED AIR INFILTRATING FROM THE CEILING OR ATTIC INTO THE CONDITIONED SPACE. AN ADDITIONAL SET OF REQUIREMENTS APPLY TO PARKING LOTS OR GARAGES WITH SPACE FOR EIGHT OR MORE CARS, WHICH ARE TYPICALLY FOR MULTIFAMILY BUILDINGS. THE NONRESIDENTIAL STANDARDS FOR PARKING LOTS AND/OR GARAGES APPLY IN THESE CASES (§132, §147).

6.2 HIGH EFFICACY LUMINAIRES
A LUMINAIRE IS THE LIGHTING INDUSTRY'S TERM FOR LIGHT FIXTURE. A LUMINAIRE CONSISTS OF THE HOUSING, POWER SUPPLY (BALLAST), LAMP, REFLECTOR, AND IN SOME CASES A LENS. A LAMP IS THE LIGHTING INDUSTRY'S TERM FOR A LIGHT BULB. LUMINAIRES CAN BE DESIGNED TO BE RECESSED INTO THE CEILING, SUSPENDED BY A ROD OR CHAIN, OR SURFACE MOUNTED ON THE WALL OR CEILING.

A HIGH EFFICACY LUMINAIRE IS ONE THAT CONTAINS ONLY HIGH EFFICACY LAMPS AND MUST NOT CONTAIN A CONVENTIONAL (MEDIUM) SCREW-BASED SOCKET. TYPICALLY, HIGH EFFICACY LUMINAIRES CONTAIN, PIN-BASED SOCKETS, LIKE COMPACT OR LINEAR FLUORESCENT LAMP SOCKETS, THOUGH OTHER TYPES SUCH AS SCREW SOCKETS SPECIFICALLY RATED FOR HIGH INTENSITY DISCHARGE LAMPS (LIKE METAL HALIDE LAMPS) MAY ALSO BE LIGIBLE FOR EXTERIOR USE. LUMINAIRES WITH MODULAR COMPONENTS THAT ALLOW CONVERSION BETWEEN SCREW-BASED AND PIN-BASED SOCKETS WITHOUT CHANGING THE LUMINAIRE HOUSING OR WIRING SHALL NOT BE CONSIDERED HIGH EFFICACY LUMINAIRES. THESE REQUIREMENTS PREVENT LOW EFFICACY LAMPS BEING RETROFITTED IN HIGH EFFICACY LUMINAIRES. ALSO, COMPACT FLUORESCENT LUMINAIRES WITH PERMANENTLY INSTALLED BALLASTS THAT ARE CAPABLE OF OPERATING A RANGE OF LAMP WATTAGES, THE HIGHEST OPERATING INPUT WATTAGE OF THE RATED LAMP/BALLAST COMBINATION MUST BE USE FOR DETERMINING THE LUMINAIRE WATTAGE.

THERE ARE TWO QUALIFYING REQUIREMENTS FOR A HIGH EFFICACY LUMINAIRE: THAT THE LUMENS PER WATT FOR THE LAMP BE ABOVE A SPECIFIED THRESHOLD AND THAT ELECTRONIC BALLASTS BE USED IN CERTAIN APPLICATIONS.

6.2.1 LUMENS PER WATT

THE LUMEN IS THE UNIT OF VISIBLE LIGHT. TO BE RATED AS HIGH EFFICACY, A LAMP MUST PRODUCE A CERTAIN NUMBER OF LUMENS FOR EACH WATT OF ELECTRICAL POWER IT CONSUMES. EFFICACY IS THEREFORE MEASURED IN LUMENS PER WATT. ALMOST ALL FLUORESCENT LAMPS EQUIPPED WITH ELECTRONIC BALLASTS QUALIFY AS HIGH EFFICACY LIGHT SOURCES; INCANDESCENT LAMPS (INCLUDING ANY SCREW-IN INCANDESCENT LAMPS, LIKE REGULAR 'A' OR REFLECTOR LAMPS, OR QUARTZ HALOGEN LAMPS, OR LOW VOLTAGE LAMPS, LIKE HALOGEN MR LAMPS) DO NOT. TO BE CLASSIFIED AS HIGH EFFICACY, A LAMP MUST MEET THE REQUIREMENTS LISTED IN TABLE 6-1 (DOCUMENTED IN TABLE 150-C OF THE STANDARDS):

FOR SIMPLICITY, THE POWER USED BY THE BALLAST IS IGNORED WHEN DETERMINING THE LUMENS PER WATT FOR PURPOSES OF COMPLIANCE WITH THE RESIDENTIAL LIGHTING REQUIREMENTS.

TABLE 6-1 - HIGH EFFICACY LAMPS

LAMP POWER	REQUIRED LAMP EFFICACY
< 15 W	40 LM/W
15-40 W	50 LM/W
>40 W	60 LM/W

NOTE: THE WATTAGE OF THE BALLAST IS NOT INCLUDED WHEN DETERMINING LAMP EFFICACY. MERCURY VAPOR LAMPS DO NOT USUALLY MEET THE REQUIREMENTS; METAL HALIDE OR COMPACT FLUORESCENT LAMPS (CFLS) ARE GOOD REPLACEMENTS. FOR OTHER LAMP TYPES SUCH AS LEDS YOU SHOULD CHECK WITH THE LAMP MANUFACTURER AND PROVIDE DOCUMENTS SHOWING THAT THE LAMP MEETS THE REQUIREMENTS. TO CALCULATE THE EFFICACY OF A LAMP, FIND OUT FROM THE MANUFACTURER HOW MANY LUMENS IT PRODUCES, THEN DIVIDE THIS NUMBER BY THE RATED WATTAGE OF THE LAMP. DO NOT INCLUDE ANY WATTS CONSUMED BY THE BALLAST.

JB DRAFTING & DESIGN
CAD DESIGN - AS BUILTS
RESIDENTIAL PLANS
610 10TH ST. SUITE "D"
PASO ROBLES, CA
93446
BUS.#(805)237-0850
FAX #(805)237-0480

PLAN PREPARED FOR:
KIRK & CARRIE ALLEN
LOT 106 TRACT 1990-2
PASO ROBLES, CA 93446

REVISION LOG

REV.	DESCRIPTION	DATE

PROJECT NO. ----

FILE NAME E-1.1 ELECTRICAL PLAN.DWG

DRAWN BY JJK

DATE 3/31/2017 8:00 AM

SHEET TITLE:

ELECTRICAL PLAN

SHEET NUMBER:

E-1.1

FENESTRATION / GLAZING

01	02	03	04	05	06	07	08	09	10
Name	Type	Surface (Orientation-Azimuth)	Width (ft)	Height (ft)	Multiplier	Area (ft²)	U-factor	SHGC	Exterior Shading
Window	Window	North Wall (Right-0)	----	----	1	15.0	0.25	0.25	Insect Screen (default)
Window 2	Window	North Wall (Right-0)	----	----	1	14.0	0.25	0.25	Insect Screen (default)
Window 3	Window	North Wall (Right-0)	----	----	1	8.0	0.25	0.25	Insect Screen (default)
Window 4	Window	North Wall (Right-0)	----	----	1	14.0	0.25	0.25	Insect Screen (default)
Window 5	Window	South Wall (Left-180)	----	----	1	15.0	0.25	0.25	Insect Screen (default)
Window 6	Window	South Wall (Left-180)	----	----	1	15.0	0.25	0.25	Insect Screen (default)
Window 7	Window	South Wall (Left-180)	----	----	1	15.0	0.25	0.25	Insect Screen (default)
Window 8	Window	South Wall (Left-180)	----	----	1	15.0	0.25	0.25	Insect Screen (default)
Window 9	Window	South Wall (Left-180)	----	----	1	25.0	0.25	0.25	Insect Screen (default)
Window 10	Window	South Wall (Left-180)	----	----	1	4.0	0.25	0.25	Insect Screen (default)
Window 11	Window	East Wall (Front-90)	----	----	1	20.0	0.25	0.25	Insect Screen (default)
Window 12	Window	East Wall (Front-90)	----	----	1	20.0	0.25	0.25	Insect Screen (default)
Window 13	Window	East Wall (Front-90)	----	----	1	20.0	0.25	0.25	Insect Screen (default)
Window 14	Window	East Wall (Front-90)	----	----	1	5.0	0.25	0.25	Insect Screen (default)
Window 15	Window	West Wall (Back-270)	----	----	1	20.0	0.25	0.25	Insect Screen (default)
Window 16	Window	West Wall (Back-270)	----	----	1	5.0	0.25	0.25	Insect Screen (default)
Window 17	Window	West Wall (Back-270)	----	----	1	15.0	0.25	0.25	Insect Screen (default)
Window 18	Window	West Wall (Back-270)	----	----	1	25.0	0.25	0.25	Insect Screen (default)
SLGD	Window	West Wall (Back-270)	----	----	1	48.0	0.25	0.25	Insect Screen (default)
SLGD 2	Window	West Wall (Back-270)	----	----	1	64.0	0.25	0.25	Insect Screen (default)
Window 19	Window	North Wall 2 (Right-0)	----	----	1	12.5	0.25	0.25	Insect Screen (default)
Window 20	Window	North Wall 2 (Right-0)	----	----	1	12.5	0.25	0.25	Insect Screen (default)

OPAQUE DOORS

01	02	03	04
Name	Side of Building	Area (ft²)	U-factor
Door	East Wall	24.0	0.50
Door 2	South Wall 2	24.0	0.50
Garage Door	West Wall 2	180.0	0.50

ZONE INFORMATION

01	02	03	04	05	06	07
Zone Name	Zone Type	HVAC System Name	Zone Floor Area (ft²)	Avg. Ceiling Height	Water Heating System 1	Water Heating System 2
Living Area	Conditioned	Split System1	2478	9	DHW Sys 1	

OPAQUE SURFACES

01	02	03	04	05	06	07	08
Name	Zone	Construction	Azimuth	Orientation	Gross Area (ft²)	Window & Door Area (ft²)	Tilt (deg)
North Wall	Living Area	R-21 Wall	0	Right	464.4	51	90
South Wall	Living Area	R-21 Wall	180	Left	392.4	89	90
East Wall	Living Area	R-21 Wall	90	Front	320.4	89	90
West Wall	Living Area	R-21 Wall	270	Back	464.4	177	90
Interior Surface	Living Area>>__Garage__	R-13 Wall			221.4	0	
Roof	Living Area	R-38 HP Attic Option B			2478		
North Wall 2	__Garage__	R-0 Wall	0	Right	252.99	25	90
South Wall 2	__Garage__	R-0 Wall	0	Right	252.99	24	90
West Wall 2	__Garage__	R-0 Wall	270	Back	221.4	180	90
Interior Surface 2	__Garage__>>Living Area	R-13 Wall			221.4	0	
Roof 2	__Garage__	R-38 HP Attic Option B			731		

ATTIC

01	02	03	04	05	06	07	08
Name	Construction	Type	Roof Rise	Roof Reflectance	Roof Emittance	Radiant Barrier	Cool Roof
Attic __Garage__	Attic Garage Roof Cons	Ventilated	0	0.1	0.85	No	No
Attic Living Area	Attic RoofLiving Area	Ventilated	0	0.1	0.85	No	No

ENERGY DESIGN RATING

Energy Design Rating (EDR) is an alternate way to express the energy performance of a building using a scoring system where 100 represents the energy performance of the Residential Energy Services (RESNET) reference home characterization of the 2006 International Energy Conservation Code (IECC). A score of zero represents the energy performance of a building that combines high levels of energy efficiency with renewable generation to"zero out" its TDV energy. Because EDR includes consideration of components not regulated by Title 24, Part 6 (such as domestic appliances and consumer electronics), it is not used to show compliance with Part 6 but may instead be used by local jurisdictions pursuing local ordinances under Title 24, Part 11 (CALGreen).

As a Standard Design building under the 2016 Building Energy Efficiency Standards is significantly more efficient than the baseline EDR building, the EDR of the Standard Design building is provided for information. Similarly, the EDR score of the Proposed Design is provided separately from the EDR value of installed PV so that the effects of efficiency and renewable energy can both be seen

EDR of Standard Design	EDR of Proposed Design	EDR Value of Proposed PV	Final EDR of Proposed Design
47.5	44.6	0.0	44.6

- ☐ Design meets Tier 1 requirement of 15% or greater code compliance margin (CALGreen A4.203.1.2.1) and QII verification prerequisite.
- ☐ Design meets Tier 2 requirement of 30% or greater code compliance margin (CALGreen A4.203.1.2.2) and QII verification prerequisite.
- ☐ Design meets Zero Net Energy (ZNE) Design Designation requirement for Single Family in climate zone CZ4 (San Jose) (CALGreen A4.203.1.2.3) including on-site photovoltaic (PV) renewable energy generation sufficient to achieve a Final Energy Design Rating (EDR) of zero or less. The PV System must be verified.

REQUIRED SPECIAL FEATURES

The following are features that must be installed as condition for meeting the modeled energy performance for this computer analysis.

- Insulation below roof deck

HERS FEATURE SUMMARY

The following is a summary of the features that must be field-verified by a certified HERS Rater as a condition for meeting the modeled energy performance for this computer analysis. Additional detail is provided in the building components tables below.

Building-level Verifications:
- IAQ mechanical ventilation

Cooling System Verifications:
- Minimum Airflow
- Fan Efficacy Watts/CFM

HVAC Distribution System Verifications:
- Duct Sealing

Domestic Hot Water System Verifications:
- -- None --

BUILDING - FEATURES INFORMATION

01	02	03	04	05	06	07
Project Name	Conditioned Floor Area (ft2)	Number of Dwelling Units	Number of Bedrooms	Number of Zones	Number of Ventilation Cooling Systems	Number of Water Heating Systems
Capps Construction Corp	2478	1	3	1	0	1

GENERAL INFORMATION

01	Project Name	Capps Construction Corp			
02	Calculation Description	Title 24 Analysis			
03	Project Location	Lot106			
04	City	Heritage Ranch/ Lakeside Village	05	Standards Version	Compliance 2017
06	Zip Code	93446	07	Compliance Manager Version	BEMCmpMgr 2016.2.1 (695)
08	Climate Zone	CZ4	09	Software Version	EnergyPro 7.1
10	Building Type	Single Family	11	Front Orientation (deg/Cardinal)	90
12	Project Scope	Newly Constructed	13	Number of Dwelling Units	1
14	Total Cond. Floor Area (ft²)	2478	15	Number of Zones	1
16	Slab Area (ft²)	2478	17	Number of Stories	1
18	Addition Cond. Floor Area	n/a	19	Natural Gas Available	No
20	Addition Slab Area (ft²)	n/a	21	Glazing Percentage (%)	15.4%

COMPLIANCE RESULTS

01	Building Complies with Computer Performance
02	This building incorporates features that require field testing and/or verification by a certified HERS rater under the supervision of a CEC-approved HERS provider.
03	This building incorporates one or more Special Features shown below

ENERGY USE SUMMARY

04	05	06	07	08
Energy Use (kTDV/ft²-yr)	Standard Design	Proposed Design	Compliance Margin	Percent Improvement
Space Heating	28.52	25.26	3.26	11.4%
Space Cooling	0.12	1.06	-0.94	-783.3%
IAQ Ventilation	1.06	1.06	0.00	0.0%
Water Heating	14.93	14.93	0.00	0.0%
Photovoltaic Offset	----	0.00	0.00	----
Compliance Energy Total	44.63	42.31	2.32	5.2%

DOCUMENTATION AUTHOR'S DECLARATION STATEMENT

1. I certify that this Certificate of Compliance documentation is accurate and complete.

Documentation Author Name: Jim Reed Cad Service	Documentation Author Signature:
Company: Jim Reed	Signature Date: 2/7/2017
Address: 610 10th St. Suite C	CEA/HERS Certification Identification (If applicable):
City/State/Zip: Paso Robles, Ca 93446	Phone: 805 239 9158

RESPONSIBLE PERSON'S DECLARATION STATEMENT

I certify the following under penalty of perjury, under the laws of the State of California:
1. I am eligible under Division 3 of the Business and Professions Code to accept responsibility for the building design identified on this Certificate of Compliance.
2. I certify that the energy features and performance specifications identified on this Certificate of Compliance conform to the requirements of Title 24, Part 1 and Part 6 of the California Code of Regulations.
3. The building design features or system design features identified on this Certificate of Compliance are consistent with the information provided on other applicable compliance documents, worksheets, calculations, plans and specifications submitted to the enforcement agency for approval with this building permit application.

Responsible Designer Name: John Butler	Responsible Designer Signature:
Company: JB Drafting & Desighn	Date Signed:
Address: 610 10th St	License:
City/State/Zip: Paso Robles, Ca 93446	Phone: 805 237 0850

HVAC - DISTRIBUTION SYSTEMS

01	02	03	04	05	06	07
Name	Type	Duct Leakage	Insulation R-value	Duct Location	Bypass Duct	HERS Verification
Air Distribution System 1	DuctsAttic	Sealed and tested	8	Attic	None	Air Distribution System 1-hers-dist

HVAC DISTRIBUTION - HERS VERIFICATION

01	02	03	04	05	06	07	08
Name	Duct Leakage Verification	Duct Leakage Target (%)	Verified Duct Location	Verified Duct Design	Buried Ducts	Deeply Buried Ducts	Low-leakage Air Handler
Air Distribution System 1-hers-dist	Required	5.0	Not Required	Not Required	Not Required	Not Required	---

HVAC - FAN SYSTEMS

01	02	03	04
Name	Type	Fan Power (Watts/CFM)	HERS Verification
HVAC Fan 1	Single Speed PSC Furnace Fan	0.58	HVAC Fan 1-hers-fan

HVAC FAN SYSTEMS - HERS VERIFICATION

01	02	03
Name	Verified Fan Watt Draw	Required Fan Efficiency (Watts/CFM)
HVAC Fan 1-hers-fan	Required	0.58

IAQ (Indoor Air Quality) FANS

01	02	03	04	05	06
Dwelling Unit	IAQ CFM	IAQ Watts/CFM	IAQ Fan Type	IAQ Recovery Effectiveness(%)	HERS Verification
SFam IAQVentRpt	55	0.25	Default	0	Required

WATER HEATING SYSTEMS

01	02	03	04	05	06
Name	System Type	Distribution Type	Water Heater	Number of Heaters	Solar Fraction (%)
DHW Sys 1	DHW	Standard	DHW Heater 1 (1)	1	.0%

WATER HEATERS

01	02	03	04	05	06	07	08	09	10	11
Name	Heater Element Type	Tank Type	Number of Units	Tank Volume (gal)	Energy Factor or Efficiency	Input Rating/Pilot	Tank Insulation R-value (Int/Ext)	Standby Loss / Recovery Eff	NEEA Heat Pump Type	Tank Location or Ambient Condition
DHW Heater 1	Gas	Small Instantaneous	1	n/a	0.82 EF	199000 Btu/hr	n/a	n/a	n/a	n/a

SPACE CONDITIONING SYSTEMS

01	02	03	04	05	06
SC Sys Name	System Type	Heating Unit Name	Cooling Unit Name	Fan Name	Distribution Name
Split System1	Other Heating and Cooling System	Heating Component 1	Cooling Component 1	HVAC Fan 1	Air Distribution System 1

HVAC - HEATING UNIT TYPES

01	02	03	04
Name	System Type	Number of Units	Efficiency
Heating Component 1	CntrlFurnace	1	90 AFUE

HVAC - COOLING UNIT TYPES

01	02	03	04	05	06	07	08
			Efficiency				
Name	System Type	Number of Units	EER	SEER	Zonally Controlled	Compressor Type	HERS Verification
Cooling Component 1	SplitAirCond	1	11.5	14	Not Zonal	Single Speed	Cooling Component 1-hers-cool

HVAC COOLING - HERS VERIFICATION

01	02	03	04	05	06
Name	Verified Airflow	Airflow Target	Verified EER	Verified SEER	Verified Refrigerant Charge
Cooling Component 1-hers-cool	Required	350	Not Required	Not Required	Not Required

OPAQUE SURFACE CONSTRUCTIONS

01	02	03	04	05	06	07
Construction Name	Surface Type	Construction Type	Framing	Total Cavity R-value	Winter Design U-value	Assembly Layers
R-0 Wall	Exterior Walls	Wood Framed Wall	2x4 @ 16 in. O.C.	none	0.361	• Inside Finish: Gypsum Board • Cavity / Frame: no insul. / 2x4 • Exterior Finish: 3 Coat Stucco
R-13 Wall	Interior Walls	Wood Framed Wall	2x4 @ 16 in. O.C.	R 13	0.092	• Inside Finish: Gypsum Board • Cavity / Frame: R-13 / 2x4 • Other Side Finish: Gypsum Board
R-38 HP Attic Option B	Ceilings (below attic)	Wood Framed Ceiling	2x4 @ 24 in. O.C.	R 38	0.025	• Inside Finish: Gypsum Board • Cavity / Frame: R-9.1 / 2x4 • Over Ceiling Joists: R-28.9 insul.
Attic Garage Roof Cons	Attic Roofs	Wood Framed Ceiling	2x4 Top Chord of Roof Truss @ 24 in. O.C.	R 13	0.078	• Under Roof Joists: R-0.0 insul. • Cavity / Frame: R-13.0 / 2x4 Top Chrd • Roof Deck: Wood Siding/sheathing/decking • Roofing: Light Roof (Asphalt Shingle)
Attic RoofLiving Area	Attic Roofs	Wood Framed Ceiling	2x4 Top Chord of Roof Truss @ 24 in. O.C.	R 13	0.078	• Under Roof Joists: R-0.0 insul. • Cavity / Frame: R-13.0 / 2x4 Top Chrd • Roof Deck: Wood Siding/sheathing/decking • Roofing: Light Roof (Asphalt Shingle)
R-21 Wall	Exterior Walls	Wood Framed Wall	2x6 @ 16 in. O.C.	R 21	0.069	• Inside Finish: Gypsum Board • Cavity / Frame: R-21 / 2x6 • Exterior Finish: 3 Coat Stucco

SLAB FLOORS

01	02	03	04	05	06	07
Name	Zone	Area (ft²)	Perimeter (ft)	Edge Insul. R-value & Depth	Carpeted Fraction	Heated
Slab-on-Grade	Living Area	2478	0.1	None	0.8	No
Slab-on-Grade 2	__Garage__	731	0.1	None	0	No

BUILDING ENVELOPE - HERS VERIFICATION

01	02	03	04
Quality Insulation Installation (QII)	Quality Installation of Spray Foam Insulation	Building Envelope Air Leakage	CFM50
Not Required	Not Required	Not Required	---

HVAC SYSTEM HEATING AND COOLING LOADS SUMMARY

Project Name: Capps Construction Corp		Date: 2/7/2017
System Name: Split System		Floor Area: 2,478

ENGINEERING CHECKS

Number of Systems	1
Heating System	
Output per System	38,000
Total Output (Btuh)	38,000
Output (Btuh/sqft)	15.3
Cooling System	
Output per System	30,000
Total Output (Btuh)	30,000
Total Output (Tons)	2.5
Total Output (Btuh/sqft)	12.1
Total Output (sqft/Ton)	991.2
Air System	
CFM per System	0
Airflow (cfm)	0
Airflow (cfm/sqft)	0.00
Airflow (cfm/Ton)	0.0
Outside Air (%)	0.0 %
Outside Air (cfm/sqft)	0.00

Note: values above given at ARI conditions

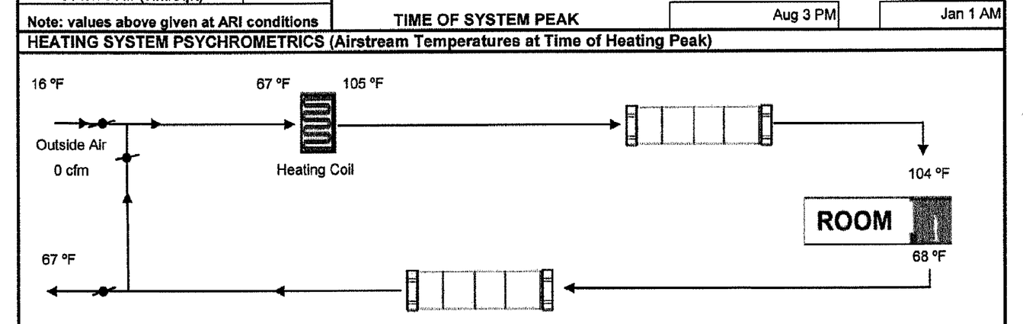
SYSTEM LOAD

	COIL COOLING PEAK CFM	Sensible	Latent	COIL HTG. PEAK CFM	Sensible
Total Room Loads	952	19,442	167	474	18,129
Return Vented Lighting		0			
Return Air Ducts		759			859
Return Fan		0			0
Ventilation	0	0	0	0	0
Supply Fan		0			0
Supply Air Ducts		759			859
TOTAL SYSTEM LOAD		20,959	167		19,847

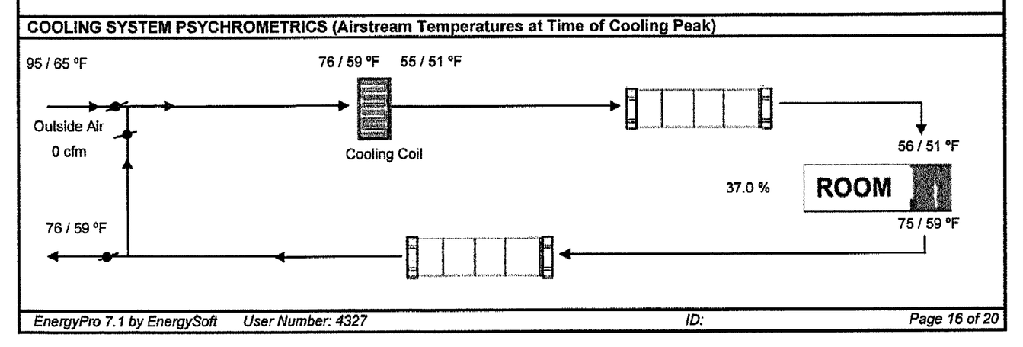
HVAC EQUIPMENT SELECTION

High Efficiency Fau	26,453	0		38,000
Total Adjusted System Output (Adjusted for Peak Design conditions)	26,453	0		38,000
TIME OF SYSTEM PEAK		Aug 3 PM		Jan 1 AM

HEATING SYSTEM PSYCHROMETRICS (Airstream Temperatures at Time of Heating Peak)



COOLING SYSTEM PSYCHROMETRICS (Airstream Temperatures at Time of Cooling Peak)



2016 Low-Rise Residential Mandatory Measures Summary

§ 150.0(k)2J:	**Interior Switches and Controls.** In bathrooms, garages, laundry rooms, and utility rooms, at least one luminaire in each of these spaces must be controlled by a vacancy sensor.
§ 150.0(k)2K:	**Interior Switches and Controls.** Dimmers or vacancy sensors must control all luminaires required to have light sources compliant with Reference Joint Appendix JA8, except luminaires in closets less than 70 square feet and luminaires in hallways.*
§ 150.0(k)2L:	**Interior Switches and Controls.** Undercabinet lighting must be switched separately from other lighting systems.
§ 150.0(k)3A:	**Residential Outdoor Lighting.** For single-family residential buildings, outdoor lighting permanently mounted to a residential building, or to other buildings on the same lot, must meet the requirement in item § 150.0(k)3Ai (ON and OFF switch) and the requirements in either item § 150.0(k)3Aii (photocell and motion sensor) or item § 150.0(k)3Aiii (photo control and automatic time switch control, astronomical time clock, or EMCS).
§ 150.0(k)3B:	**Residential Outdoor Lighting.** For low-rise multifamily residential buildings, outdoor lighting for private patios, entrances, balconies, and porches; and outdoor lighting for residential parking lots and residential carports with less than eight vehicles per site must comply with either § 150.0(k)3A or with the applicable requirements in §§ 110.9, 130.0, 130.2, 130.4, 140.7 and 141.0.
§ 150.0(k)3C:	**Residential Outdoor Lighting.** For low-rise residential buildings with four or more dwelling units, outdoor lighting not regulated by § 150.0(k)3B or § 150.0(k)3D must comply with the applicable requirements in §§ 110.9, 130.0, 130.2, 130.4, 140.7 and 141.0.
§ 150.0(k)3D:	**Residential Outdoor Lighting.** Outdoor lighting for residential parking lots and residential carports with a total of eight or more vehicles per site must comply with the applicable requirements in §§ 110.9, 130.0, 130.2, 130.4, 140.7, and 141.0.
§ 150.0(k)4:	**Internally illuminated address signs.** Internally illuminated address signs must comply with § 140.8; or must consume no more than 5 watts of power as determined according to § 130.0(c).
§ 150.0(k)5:	**Residential Garages for Eight or More Vehicles.** Lighting for residential parking garages for eight or more vehicles must comply with the applicable requirements for nonresidential garages in §§ 110.9, 130.0, 130.1, 130.4, 140.6, and 141.0.
§ 150.0(k)6A:	**Interior Common Areas of Low-rise Multi-Family Residential Buildings.** In a low-rise multifamily residential building where the total interior common area in a single building equals 20 percent or less of the floor area, permanently installed lighting for the interior common areas in that building must be high efficacy luminaires and controlled by an occupant sensor.
§ 150.0(k)6B:	**Interior Common Areas of Low-rise Multi-Family Residential Buildings.** In a low-rise multifamily residential building where the total interior common area in a single building equals more than 20 percent of the floor area, permanently installed lighting in that building must: i. Comply with the applicable requirements in §§ 110.9, 130.0, 130.1, 140.6 and 141.0; and ii. Lighting installed in corridors and stairwells must be controlled by occupant sensors that reduce the lighting power in each space by at least 50 percent. The occupant sensors must be capable of turning the light fully on and off from all designed paths of ingress and egress.
Solar Ready Buildings:	
§ 110.10(a)1:	**Single Family Residences.** Single family residences located in subdivisions with ten or more single family residences and where the application for a tentative subdivision map for the residences has been deemed complete by the enforcement agency must comply with the requirements of § 110.10(b) through § 110.10(e).
§ 110.10(a)2:	**Low-rise Multi-family Buildings.** Low-rise multi-family buildings must comply with the requirements of § 110.10(b) through § 110.10(d).
§ 110.10(b)1:	**Minimum Area.** The solar zone must have a minimum total area as described below. The solar zone must comply with access, pathway, smoke ventilation, and spacing requirements as specified in Title 24, Part 9 or other Parts of Title 24 or in any requirements adopted by a local jurisdiction. The solar zone total area must be comprised of areas that have no dimension less than 5 feet and are no less than 80 square feet each for buildings with roof areas less than or equal to 10,000 square feet or no less than 160 square feet each for buildings with roof areas greater than 10,000 square feet. For single family residences the solar zone must be located on the roof or overhang of the building and have a total area no less than 250 square feet. For low-rise multi-family buildings the solar zone must be located on the roof or overhang of the building, or on the roof or overhang of another structure located within 250 feet of the building, or on covered parking installed with the building project, and have a total area no less than 15 percent of the total roof area of the building excluding any skylight area.*
§ 110.10(b)2:	**Orientation.** All sections of the solar zone located on steep-sloped roofs must be oriented between 110 degrees and 270 degrees of true north.
§ 110.10(b)3A:	**Shading.** The solar zone must not contain any obstructions, including but not limited to: vents, chimneys, architectural features, and roof mounted equipment.*
§ 110.10(b)3B:	**Shading.** Any obstruction located on the roof or any other part of the building that projects above a solar zone must be located at least twice the distance, measured in the horizontal plane, of the height difference between the highest point of the obstruction and the horizontal projection of the nearest point of the solar zone, measured in the vertical plane.*
§ 110.10(b)4:	**Structural Design Loads on Construction Documents.** For areas of the roof designated as solar zone, the structural design loads for roof dead load and roof live load must be clearly indicated on the construction documents.
§ 110.10(c):	**Interconnection Pathways.** The construction documents must indicate: a location for inverters and metering equipment and a pathway for routing of conduit from the solar zone to the point of interconnection with the electrical service (for single family residences the point of interconnection will be the main service panel); and a pathway for routing of plumbing from the solar zone to the water-heating system.
§ 110.10(d):	**Documentation.** A copy of the construction documents or a comparable document indicating the information from § 110.10(b) through § 110.10(c) must be provided to the occupant.
§ 110.10(e)1:	**Main Electrical Service Panel.** The main electrical service panel must have a minimum busbar rating of 200 amps.
§ 110.10(e)2:	**Main Electrical Service Panel.** The main electrical service panel must have a reserved space to allow for the installation of a double pole circuit breaker for a future solar electric installation. The reserved space must be: positioned at the opposite (load) end from the input feeder location or main circuit location; and permanently marked as "For Future Solar Electric".

2016 Low-Rise Residential Mandatory Measures Summary

§ 150.0(m)13:	**Duct System Sizing and Air Filter Grille Sizing.** Space conditioning systems that use forced air ducts to supply cooling to an occupiable space must have a hole for the placement of a static pressure probe (HSPP), or a permanently installed static pressure probe (PSPP) in the supply plenum. The space conditioning system must also demonstrate airflow ≥ 350 CFM per ton of nominal cooling capacity through the return grilles, and an air-handling unit fan efficacy ≤ 0.58 W/CFM as confirmed by field verification and diagnostic testing, in accordance with Reference Residential Appendix RA3.3. This applies to both single zone central forced air systems and every zone for zonally controlled central forced air systems.*
§150.0(o):	**Ventilation for Indoor Air Quality.** All dwelling units must meet the requirements of ASHRAE Standard 62.2. Neither window operation nor continuous operation of central forced air system air handlers used in central fan integrated ventilation systems are permissible methods of providing whole-building ventilation.
§ 150.0(o)1A:	**Field Verification and Diagnostic Testing.** Whole-building ventilation airflow must be confirmed through field verification and diagnostic testing, in accordance with Reference Residential Appendix RA3.7.
Pool and Spa Systems and Equipment Measures:	
§ 110.4(a):	**Certification by Manufacturers.** Any pool or spa heating system or equipment must be certified to have all of the following: a thermal efficiency that complies with the Appliance Efficiency Regulations; an on-off switch mounted outside of the heater that allows shutting off the heater without adjusting the thermostat setting; a permanent weatherproof plate or card with operating instructions; and must not use electric resistance heating.*
§ 110.4(b)1:	**Piping.** Any pool or spa heating equipment must be installed with at least 36 inches of pipe between the filter and the heater, or dedicated suction and return lines, or built-in or built-up connections to allow for future solar heating.
§ 110.4(b)2:	**Covers.** Outdoor pools or spas that have a heat pump or gas heater must have a cover.
§ 110.4(b)3:	**Directional inlets and time switches for pools.** Pools must have directional inlets that adequately mix the pool water, and a time switch that will allow all pumps to be set or programmed to run only during off-peak electric demand periods.
§ 110.5:	**Pilot Light.** Natural gas pool and spa heaters must not have a continuously burning pilot light.
§ 150.0(p):	**Pool Systems and Equipment Installation.** Residential pool systems or equipment must meet the specified requirements for pump sizing, flow rate, piping, filters, and valves.*
Lighting Measures:	
§ 110.9:	**Lighting Controls and Components.** All lighting control devices and systems, ballasts, and luminaires must meet the applicable requirements of § 110.9.*
§ 110.9(e):	**JA8 High Efficacy Light Sources.** To qualify as a JA8 high efficacy light source for compliance with § 150.0(k), a residential light source must be certified to the Energy Commission according to Reference Joint Appendix JA8.
§ 150.0(k)1A:	**Luminaire Efficacy.** All installed luminaires must be high efficacy in accordance with TABLE 150.0-A.
§ 150.0(k)1B:	**Blank Electrical Boxes.** The number of electrical boxes that are more than 5 feet above the finished floor and do not contain a luminaire or other device must be no greater than the number of bedrooms. These electrical boxes must be served by a dimmer, vacancy sensor control, or fan speed control.
§ 150.0(k)1C:	**Recessed Downlight Luminaires in Ceilings.** Luminaires recessed into ceilings must meet all of the requirements for: insulation contact (IC) labeling; air leakage; sealing; maintenance; and socket and light source as described in § 150.0(k)1C. A JA8-2016-E light source rated for elevated temperature must be installed by final inspection in all recessed downlight luminaires in ceilings.
§ 150.0(k)1D:	**Electronic Ballasts.** Ballasts for fluorescent lamps rated 13 watts or greater must be electronic and must have an output frequency no less than 20 kHz.
§ 150.0(k)1E:	**Night Lights.** Permanently installed night lights and night lights integral to installed luminaires or exhaust fans must be rated to consume no more than 5 watts of power per luminaire or exhaust fan as determined in accordance with § 130.0(c). Night lights do not need to be controlled by vacancy sensors.
§ 150.0(k)1F:	**Lighting Integral to Exhaust Fans.** Lighting integral to exhaust fans (except when installed by the manufacturer in kitchen exhaust hoods) must meet the applicable requirements of § 150.0(k).*
§ 150.0(k)1G:	**Screw based luminaires.** Screw based luminaires must not be recessed downlight luminaires in ceilings and must contain lamps that comply with Reference Joint Appendix JA8. Installed lamps must be marked with "JA8-2016" or "JA8-2016-E" as specified in Reference Joint Appendix JA8.*
§ 150.0(k)1H:	**Enclosed Luminaires.** Light sources installed in enclosed luminaires must be JA8 compliant and must be marked with "JA8-2016-E."
§ 150.0(k)2A:	**Interior Switches and Controls.** All forward phase cut dimmers used with LED light sources must comply with NEMA SSL 7A.
§ 150.0(k)2B:	**Interior Switches and Controls.** Exhaust fans must be switched separately from lighting systems.*
§ 150.0(k)2C:	**Interior Switches and Controls.** Luminaires must be switched with readily accessible controls that permit the luminaires to be manually switched ON and OFF.
§ 150.0(k)2D:	**Interior Switches and Controls.** Controls and equipment must be installed in accordance with manufacturer's instructions.
§ 150.0(k)2E:	**Interior Switches and Controls.** No control must bypass a dimmer or vacancy sensor function if the control is installed to comply with § 150.0(k).
§ 150.0(k)2F:	**Interior Switches and Controls.** Lighting controls must comply with the applicable requirements of § 110.9.
§ 150.0(k)2G:	**Interior Switches and Controls.** An energy management control system (EMCS) may be used to comply with dimmer requirements if it: functions as a dimmer according to § 110.9; meets the Installation Certificate requirements of § 130.4; meets the EMCS requirements of § 130.5(f); and meets all other requirements in § 150.0(k)2.
§ 150.0(k)2H:	**Interior Switches and Controls.** An EMCS may be used to comply with vacancy sensor requirements in § 150.0(k) if it meets all of the following: it functions as a vacancy sensor according to § 110.9; the Installation Certificate requirements of § 130.4; the EMCS requirements of § 130.5(f); and all other requirements in § 150.0(k)2.
§ 150.0(k)2I:	**Interior Switches and Controls.** A multiscene programmable controller may be used to comply with dimmer requirements in § 150.0(k) if it provides the functionality of a dimmer according to § 110.9, and complies with all other applicable requirements in § 150.0(k)2.

2016 Low-Rise Residential Mandatory Measures Summary

§ 150.0(h)3A:	**Clearances.** Installed air conditioner and heat pump outdoor condensing units must have a clearance of at least 5 feet from the outlet of any dryer vent.
§ 150.0(h)3B:	**Liquid Line Drier.** Installed air conditioner and heat pump systems must be equipped with liquid line filter driers if required, as specified by manufacturer's instructions.
§ 150.0(j)1:	**Storage Tank Insulation.** Unfired hot water tanks, such as storage tanks and backup storage tanks for solar water-heating systems, must have R-12 external insulation or R-16 internal insulation where the internal insulation R-value is indicated on the exterior of the tank.
§ 150.0(j)2A:	**Water piping and cooling system line insulation.** For domestic hot water system piping, whether buried or unburied, all of the following must be insulated according to the requirements of TABLE 120.3-A: the first 5 feet of hot and cold water pipes from the storage tank; all piping with a nominal diameter of 3/4 inch or larger; all piping associated with a domestic hot water recirculation system regardless of the pipe diameter; piping from the heating source to storage tank or between tanks; all piping buried below grade; and all hot water pipes from the heating source to kitchen fixtures.*
§ 150.0(j)2B:	**Water piping and cooling system line insulation.** All domestic hot water pipes that are buried below grade must be installed in a water proof and non-crushable casing or sleeve.*
§ 150.0(j)2C:	**Water piping and cooling system line insulation.** Pipe for cooling system lines must be insulated as specified in § 150.0(j)2A. Distribution piping for steam and hydronic heating systems or hot water systems must meet the requirements in TABLE 120.3-A.*
§ 150.0(j)3:	**Insulation Protection.** Insulation must be protected from damage, including that due to sunlight, moisture, equipment maintenance, and wind.
§ 150.0(j)3A:	**Insulation Protection.** Insulation exposed to weather must be installed with a cover suitable for outdoor service. For example, protected by aluminum, sheet metal, painted canvas, or plastic cover. The cover must be water retardant and provide shielding from solar radiation that can cause degradation of the material.
§ 150.0(j)3B:	**Insulation Protection.** Insulation covering chilled water piping and refrigerant suction piping located outside the conditioned space must have a Class I or Class II vapor retarder.
§ 150.0(n)1:	**Gas or Propane Systems.** Systems using gas or propane water heaters to serve individual dwelling units must include all of the following: a 120V electrical receptacle within 3 feet of the water heater; a Category III or IV vent, or a Type B vent with straight pipe between the outside termination and the space where the water heater is installed; a condensate drain that is no more than 2 inches higher than the base of the water heater, and allows natural draining without pump assistance; and a gas supply line with a capacity of at least 200,000 Btu/hr.
§ 150.0(n)2:	**Recirculating Loops.** Recirculating loops serving multiple dwelling units must meet the requirements of § 110.3(c)5.
§ 150.0(n)3:	**Solar Water-heating Systems.** Solar water-heating systems and collectors must be certified and rated by the Solar Rating and Certification Corporation (SRCC) or by a listing agency that is approved by the Executive Director.
Ducts and Fans Measures:	
§ 110.8(d)3:	**Ducts.** Insulation installed on an existing space-conditioning duct must comply with § 604.0 of the California Mechanical Code (CMC). If a contractor installs the insulation, the contractor must certify to the customer, in writing, that the insulation meets this requirement.
§ 150.0(m)1:	**CMC Compliance.** All air-distribution system ducts and plenums must be installed, sealed, and insulated to meet the requirements of CMC §§ 601.0, 602.0, 603.0, 604.0, 605.0 and ANSI/SMACNA-006-2006 HVAC Duct Construction Standards Metal and Flexible 3rd Edition. Portions of supply-air and return-air ducts and plenums must be insulated to a minimum installed level of R-6.0 (or higher if required by CMC § 605.0) or a minimum installed level of R-4.2 when entirely in conditioned space as confirmed through field verification and diagnostic testing (RA3.1.4.3.8). Connections of metal ducts and inner core of flexible ducts must be mechanically fastened. Openings must be sealed with mastic, tape, or other duct-closure system that meets the applicable requirements of UL 181, UL 181A, or UL 181B or aerosol sealant that meets the requirements of UL 723. If mastic or tape is used to seal openings greater than ¼ inch, the combination of mastic and either mesh or tape must be used. Building cavities, support platforms for air handlers, and plenums designed or constructed with materials other than sealed sheet metal, duct board or flexible duct must not be used for conveying conditioned air. Building cavities and support platforms may contain ducts. Ducts installed in cavities and support platforms must not be compressed to cause reductions in the cross-sectional area of the ducts.*
§ 150.0(m)2:	**Factory-Fabricated Duct Systems.** Factory-fabricated duct systems must comply with applicable requirements for duct construction, connections, and closures; joints and seams of duct systems and their components must not be sealed with cloth back rubber adhesive duct tapes unless such tape is used in combination with mastic and draw bands.
§ 150.0(m)3:	**Field-Fabricated Duct Systems.** Field-fabricated duct systems must comply with applicable requirements for: pressure-sensitive tapes, mastics, sealants, and other requirements specified for duct construction.
§ 150.0(m)7:	**Backdraft Dampers.** All fan systems that exchange air between the conditioned space and the outside of the building must have backdraft or automatic dampers.
§ 150.0(m)8:	**Gravity Ventilation Dampers.** Gravity ventilating systems serving conditioned space must have either automatic or readily accessible, manually operated dampers in all openings to the outside, except combustion inlet and outlet air openings and elevator shaft vents.
§ 150.0(m)9:	**Protection of Insulation.** Insulation must be protected from damage, including that due to sunlight, moisture, equipment maintenance, and wind. Insulation exposed to weather must be suitable for outdoor service. For example, protected by aluminum, sheet metal, painted canvas, or plastic cover. Cellular foam insulation must be protected as above or painted with a coating that is water retardant and provides shielding from solar radiation.
§ 150.0(m)10:	**Porous Inner Core Flex Duct.** Porous inner core flex duct must have a non-porous layer between the inner core and outer vapor barrier.
§ 150.0(m)11:	**Duct System Sealing and Leakage Test.** When space conditioning systems use forced air duct systems to supply conditioned air to an occupiable space, the ducts must be sealed and duct leakage tested, as confirmed through field verification and diagnostic testing, in accordance with § 150.0(m)11and Reference Residential Appendix RA3.
§ 150.0(m)12:	**Air Filtration.** Mechanical systems that supply air to an occupiable space through ductwork exceeding 10 feet in length and through a thermal conditioning component, except evaporative coolers, must be provided with air filter devices that meet the design, installation, efficiency, pressure drop, and labeling requirements of § 150.0(m)12.

2016 Low-Rise Residential Mandatory Measures Summary

*NOTE: Low-rise residential buildings subject to the Energy Standards must comply with all applicable mandatory measures, regardless of the compliance approach used. Review the respective section for more information. *Exceptions may apply.*
(Original 08/2016)

Building Envelope Measures:	
§ 110.6(a)1:	**Air Leakage.** Manufactured fenestration, exterior doors, and exterior pet doors must limit air leakage to 0.3 cfm/ft² or less when tested per NFRC-400 or ASTM E283 or AAMA/WDMA/CSA 101/I.S.2/A440-2011.*
§ 110.6(a)5:	**Labeling.** Fenestration products must have a label meeting the requirements of § 10-111(a).
§ 110.6(b):	**Field fabricated exterior doors and fenestration** products must use U-factors and solar heat gain coefficient (SHGC) values from TABLES 110.6-A and 110.6-B for compliance and must be caulked and/or weatherstripped.*
§ 110.7:	**Air Leakage.** All joints, penetrations, and other openings in the building envelope that are potential sources of air leakage must be caulked, gasketed, or weather stripped.
§ 110.8(a):	**Insulation Certification by Manufacturers.** Insulation specified or installed must meet Standards for Insulating Material.
§ 110.8(g):	**Insulation Requirements for Heated Slab Floors.** Heated slab floors must be insulated per the requirements of § 110.8(g).
§ 110.8(i):	**Roofing Products Solar Reflectance and Thermal Emittance.** The thermal emittance and aged solar reflectance values of the roofing material must meet the requirements of § 110.8(i) when the installation of a cool roof is specified on the CF1R.
§ 110.8(j):	**Radiant Barrier.** A radiant barrier must have an emittance of 0.05 or less and be certified to the Department of Consumer Affairs.
§ 150.0(a):	**Ceiling and Rafter Roof Insulation.** Minimum R-22 insulation in wood-frame ceiling; or the weighted average U-factor must not exceed 0.043. Minimum R-19 or weighted average U-factor of 0.054 or less in a rafter roof alteration. Attic access doors must have permanently attached insulation using adhesive or mechanical fasteners. The attic access must be gasketed to prevent air leakage. Insulation must be installed in direct contact with a continuous roof or ceiling which is sealed to limit infiltration and exfiltration as specified in § 110.7, including but not limited to placing insulation either above or below the roof deck or on top of a drywall ceiling.*
§ 150.0(b):	**Loose-fill Insulation.** Loose fill insulation must meet the manufacturer's required density for the labeled R-value.
§ 150.0(c):	**Wall Insulation.** Minimum R-13 insulation in 2x4 inch wood framing wall or have a U-factor of 0.102 or less (R-19 in 2x6 or U-factor of 0.074 or less). Opaque non-framed assemblies must have an overall assembly U-factor not exceeding 0.102, equivalent to an installed value of R-13 in a wood framed assembly.*
§ 150.0(d):	**Raised-floor Insulation.** Minimum R-19 insulation in raised wood framed floor or 0.037 maximum U-factor.*
§ 150.0(f):	**Slab Edge Insulation.** Slab edge insulation must meet all of the following: have a water absorption rate, for the insulation material alone without facings, no greater than 0.3%; have a water vapor permeance no greater than 2.0 perm/inch; be protected from physical damage and UV light deterioration; and, when installed as part of a heated slab floor, meet the requirements of § 110.8(g).
§ 150.0(g)1:	**Vapor Retarder.** In Climate Zones 1-16, the earth floor of unvented crawl space must be covered with a Class I or Class II vapor retarder. This requirement also applies to controlled ventilation crawl space for buildings complying with the exception to § 150.0(d).
§ 150.0(g)2:	**Vapor Retarder.** In Climate Zones 14 and 16, a Class I or Class II vapor retarder must be installed on the conditioned space side of all insulation in all exterior walls, vented attics, and unvented attics with air-permeable insulation.
§ 150.0(q):	**Fenestration Products.** Fenestration, including skylights, separating conditioned space from unconditioned space or outdoors must have a maximum U-factor of 0.58; or the weighted average U-factor of all fenestration must not exceed 0.58.*
Fireplaces, Decorative Gas Appliances, and Gas Log Measures:	
§ 150.0(e)1A:	**Closable Doors.** Masonry or factory-built fireplaces must have a closable metal or glass door covering the entire opening of the firebox.
§ 150.0(e)1B:	**Combustion Intake.** Masonry or factory-built fireplaces must have a combustion outside air intake, which is at least six square inches in area and is equipped with a readily accessible, operable, and tight-fitting damper or combustion-air control device.*
§ 150.0(e)1C:	**Flue Damper.** Masonry or factory-built fireplaces must have a flue damper with a readily accessible control.*
§ 150.0(e)2:	**Pilot Light.** Continuous burning pilot lights and the use of indoor air for cooling a firebox jacket, when that indoor air is vented to the outside of the building, are prohibited.
Space Conditioning, Water Heating, and Plumbing System Measures:	
§ 110.0-§ 110.3:	**Certification.** Heating, ventilation and air conditioning (HVAC) equipment, water heaters, showerheads, faucets, and all other regulated appliances must be certified by the manufacturer to the Energy Commission.*
§ 110.2(a):	**HVAC Efficiency.** Equipment must meet the applicable efficiency requirements in TABLE 110.2-A through TABLE 110.2-K.*
§ 110.2(b):	**Controls for Heat Pumps with Supplementary Electric Resistance Heaters.** Heat pumps with supplementary electric resistance heaters must have controls that prevent supplementary heater operation when the heating load can be met by the heat pump alone; and in which the cut-on temperature for compression heating is higher than the cut-on temperature for supplementary heating, and the cut-off temperature for compression heating is higher than the cut-off temperature for supplementary heating.*
§ 110.2(c):	**Thermostats.** All unitary heating or cooling systems not controlled by a central energy management control system (EMCS) must have a setback thermostat.*
§ 110.3(c)5:	**Water Heating Recirculation Loops Serving Multiple Dwelling Units.** Water heating recirculation loops serving multiple dwelling units must meet the air release valve, backflow prevention, pump priming, pump isolation valve, and recirculation loop connection requirements of § 110.3(c)5.
§ 110.3(c)7:	**Isolation Valves.** Instantaneous water heaters with an input rating greater than 6.8 kBTU/hr (2 kW) must have isolation valves with hose bibbs or other fittings on both cold water and hot water lines of water heating systems to allow for water tank flushing when the valves are closed.
§ 110.5:	**Pilot Lights.** Continuously burning pilot lights are prohibited for natural gas: fan-type central furnaces; household cooking appliances (appliances without an electrical supply voltage connection with pilot lights that consume less than 150 Btu/hr are exempt); and pool and spa heaters.*
§ 150.0(h)1:	**Building Cooling and Heating Loads.** Heating and/or cooling loads are calculated in accordance with ASHRAE Handbook, Equipment Volume, Applications Volume, and Fundamentals Volume; SMACNA Residential Comfort System Installation Standards Manual; or ACCA Manual J using design conditions specified in § 150.0(h)2.

RESIDENTIAL MEASURES SUMMARY — RMS-1

Project Name: Capps Construction Corp	Building Type: ☒ Single Family ☐ Multi Family	☐ Addition Alone ☐ Existing+ Addition/Alteration		Date: 2/7/2017
Project Address: Lot106 Heritage Ranch/ Lakeside Village	California Energy Climate Zone: CA Climate Zone 04	Total Cond. Floor Area: 2,478	Addition: n/a	# of Units: 1

INSULATION

Construction	Type	Cavity	Area (ft²)	Special Features	Status
Wall	Wood Framed	R 21	1,236		New
Door	Opaque Door	- no insulation	24		New
Slab	Unheated Slab-on-Grade	- no insulation	2,478	Perim = 0'	New
Roof	Wood Framed Attic	R 38	2,478	Add=R-13.0	New
Demising	Wood Framed	R 13	221		New

FENESTRATION — Total Area: 382 Glazing Percentage: 15.4 % New/Altered Average U-Factor: 0.25

Orientation	Area(ft²)	U-Fac	SHGC	Overhang	Sidefins	Exterior Shades	Status
Right (N)	51.0	0.250	0.25	none	none	Bug Screen	New
Left (S)	89.0	0.250	0.25	none	none	Bug Screen	New
Front (E)	65.0	0.250	0.25	none	none	Bug Screen	New
Rear (W)	177.0	0.250	0.25	none	none	Bug Screen	New

HVAC SYSTEMS

Qty.	Heating	Min. Eff	Cooling	Min. Eff	Thermostat	Status
1	Central Furnace	90% AFUE	Split Air Conditioner	14.0 SEER	Setback	New

HVAC DISTRIBUTION

Location	Heating	Cooling	Duct Location	Duct R-Value	Status
Split System	Ducted	Ducted	Attic	8.0	New

WATER HEATING

Qty.	Type	Gallons	Min. Eff	Distribution	Status
1	Small Instantaneous Gas	0	0.82	Standard	New

DUCT DYNASTY
Title 24 | HERS Rating | Duct Plans & Testing
ID# CC2006321

PLAN PREPARED FOR:
KIRK & CARRIE ALLEN
LOT 106 TRACT 1990-2
PASO ROBLES, CA 93446

REVISION LOG

REV.	DESCRIPTION	DATE

PROJECT NO. ----
FILE NAME T-24 ENERGY COMPLIANCE.DWG
DRAWN BY JJK
DATE 3/31/2017 8:00 AM
SHEET TITLE:
ENERGY COMPLIANCE
SHEET NUMBER:
T-24

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Right-J® Worksheet
Entire House
Jim Reed CAD Service

Job:
Date: Feb 08, 2017
By: Jim Reed

610 10th Street, Paso Robles, Ca 93446 Phone: 805 239 8670 Email: reed708@sbcglobal.net

		Entire House	BEDROOM
1	Room name	Entire House	BEDROOM
2	Exposed wall	211.0 ft	33.7 ft
3	Room height	9.0 ft d	9.0 ft heat/cool
4	Room dimensions		1.0 x 302.7 ft
5	Room area	2331.0 ft²	302.7 ft²

	Ty	Construction number	U-value (Btuh/ft²-°F)	Or	HTM Heat	HTM Cool	Entire House Area Gross	N/P/S	Load Heat	Load Cool	BEDROOM Area Gross	N/P/S	Load Heat	Load Cool
6	W	12C-0sw	0.091	n	3.55	1.94	483	447	1585	868	0	0	0	0
	G	1D-c2ow	0.570	n	22.23	22.34	8	0	178	179	0	0	0	0
	G	1D-c2ow	0.570	n	22.23	22.34	14	0	311	313	0	0	0	0
	G	1D-c2ow	0.570	n	22.23	22.34	14	0	318	320	0	0	0	0
11	W	12C-0sw	0.091	e	3.55	1.94	357	250	886	485	0	0	0	0
	G	1D-c2ow	0.570	e	22.23	54.17	20	6	445	1083	0	0	0	0
	G	1D-c2ow	0.570	e	22.23	55.39	40	10	889	2215	0	0	0	0
	D	11D0	0.390	e	15.21	10.28	47	47	720	486	0	0	0	0
	W	12C-0sw	0.091	s	3.55	1.94	483	394	1398	765	102	132	468	256
	G	1D-c2ow	0.570	s	22.23	22.34	4	8	89	89	0	0	0	0
	G	1D-c2ow	0.570	s	22.23	22.34	60	120	1334	1341	30	30	667	670
	G	1D-c2ow	0.570	s	22.23	22.34	25	50	556	559	0	0	0	0
	W	12C-0sw	0.091	w	3.55	1.94	576	436	1549	846	141	92	327	179
	G	1D-c2ow	0.570	w	22.23	54.17	20	6	445	1083	0	0	0	0
	G	1D-c2ow	0.570	w	22.23	55.39	30	8	667	1662	0	0	0	0
	G	1D-c2ow	0.570	w	22.23	56.26	49	10	1085	2745	49	5	1085	2745
	G	1D-c2ow	0.570	w	22.23	56.67	41	8	907	2312	0	0	0	0
	C	16ER-38td	0.026	-	1.01	0.65	2331	2331	2363	1506	303	303	307	196
	F	19C-19cscp	0.049	-	0.66	0.40	2331	2331	1544	942	303	303	201	122

		Entire House Heat	Entire House Cool	BEDROOM Heat	BEDROOM Cool
6	c) AED excursion		1984		1098
	Envelope loss/gain	17269	21787	3055	5267
12	a) Infiltration	3745	978	598	156
	b) Room ventilation	0	0	0	0
13	Internal gains: Occupants @ 230 (0 / 0) Appliances/other		0 / 0		0 / 0
	Subtotal (lines 6 to 13)	21014	22764	3652	5423
	Less external load	0	0	0	0
	Less transfer	0	0	0	0
	Redistribution	0	0	0	0
14	Subtotal	21014	22764	3652	5423
15	Duct loads (40% / 28%)	8310	6336	1444	1509
	Total room load	29324	29100	5097	6933
	Air required (cfm)	637	1113	111	265

Calculations approved by ACCA to meet all requirements of Manual J 8th Ed.

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Project Summary
Entire House
Jim Reed CAD Service

Job:
Date: Feb 08, 2017
By: Jim Reed

610 10th Street, Paso Robles, Ca 93446 Phone: 805 239 8670 Email: reed708@sbcglobal.net

Project Information

For: Capps, Capps Construction
Lot 160 Lakeside Village, Heritage Ranch/ Paso Robles, Ca 93446

Notes:

Design Information

Weather: Paso Robles Municipal AP, CA, US

Winter Design Conditions

Outside db	29 °F
Inside db	68 °F
Design TD	39 °F

Heating Summary

Structure	21014 Btuh
Ducts	8310 Btuh
Central vent (0 cfm) (none)	0 Btuh
Humidification	0 Btuh
Piping	0 Btuh
Equipment load	29324 Btuh

Infiltration

Method	Simplified
Construction quality	Semi-tight
Fireplaces	1 (Semi-tight)

	Heating	Cooling
Area (ft²)	2331	2331
Volume (ft³)	20979	20979
Air changes/hour	0.26	0.11
Equiv. AVF (cfm)	90	38

Heating Equipment Summary

Make	Carrier
Trade	Carrier 80% Single-Stage Furna...
Model	58STX045-08
AHRI ref	2000821
Efficiency	90 AFUE
Heating input	42000 Btuh
Heating output	34000 Btuh
Temperature rise	50 °F
Actual air flow	637 cfm
Air flow factor	0.022 cfm/Btuh
Static pressure	0.60 in H2O
Space thermostat	

Summer Design Conditions

Outside db	99 °F
Inside db	75 °F
Design TD	24 °F
Daily range	H
Relative humidity	17 %
Moisture difference	27 gr/lb

Sensible Cooling Equipment Load Sizing

Structure	22764 Btuh
Ducts	6336 Btuh
Central vent (0 cfm) (none)	0 Btuh
Blower	0 Btuh
Use manufacturer's data	y
Rate/swing multiplier	1.00
Equipment sensible load	29100 Btuh

Latent Cooling Equipment Load Sizing

Structure	686 Btuh
Ducts	708 Btuh
Central vent (0 cfm) (none)	0 Btuh
Equipment latent load	1394 Btuh
Equipment total load	30493 Btuh
Req. total capacity at 0.70 SHR	3.5 ton

Cooling Equipment Summary

Make	Carrier
Trade	ADP
Cond	38HDR036-31
Coil	PL36H210P74(6,9)++TD
AHRI ref	5598723
Efficiency	11.0 EER, 14 SEER
Sensible cooling	23380 Btuh
Latent cooling	10020 Btuh
Total cooling	33400 Btuh
Actual air flow	1113 cfm
Air flow factor	0.038 cfm/Btuh
Static pressure	0.60 in H2O
Load sensible heat ratio	0.95

Calculations approved by ACCA to meet all requirements of Manual J 8th Ed.

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Entire House	d	2331	29324	29100	637	1113
Other equip loads			0	0		
Equip. @ 1.00 RSM				29100		
Latent cooling				1394		
TOTALS		2331	29324	30493	637	1113

Calculations approved by ACCA to meet all requirements of Manual J 8th Ed.

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Load Short Form
Entire House
Jim Reed CAD Service

Job:
Date: Feb 08, 2017
By: Jim Reed

610 10th Street, Paso Robles, Ca 93446 Phone: 805 239 8670 Email: reed708@sbcglobal.net

Project Information

For: Capps, Capps Construction
Lot 160 Lakeside Village, Heritage Ranch/ Paso Robles, Ca 93446

Design Information

	Htg	Clg
Outside db (°F)	29	99
Inside db (°F)	68	75
Design TD (°F)	39	24
Daily range	-	H
Inside humidity (%)	17	17
Moisture difference (gr/lb)	-1	27

Infiltration

Method	Simplified
Construction quality	Semi-tight
Fireplaces	1 (Semi-tight)

HEATING EQUIPMENT

Make	Carrier
Trade	Carrier 80% Single-Stage Furna...
Model	58STX045-08
AHRI ref	2000821
Efficiency	90 AFUE
Heating input	42000 Btuh
Heating output	34000 Btuh
Temperature rise	50 °F
Actual air flow	637 cfm
Air flow factor	0.022 cfm/Btuh
Static pressure	0.60 in H2O
Space thermostat	

COOLING EQUIPMENT

Make	Carrier
Trade	ADP
Cond	38HDR036-31
Coil	PL36H210P74(6,9)++TD
AHRI ref	5598723
Efficiency	11.0 EER, 14 SEER
Sensible cooling	23380 Btuh
Latent cooling	10020 Btuh
Total cooling	33400 Btuh
Actual air flow	1113 cfm
Air flow factor	0.038 cfm/Btuh
Static pressure	0.60 in H2O
Load sensible heat ratio	0.95

ROOM NAME	Area (ft²)	Htg load (Btuh)	Clg load (Btuh)	Htg AVF (cfm)	Clg AVF (cfm)
BEDROOM	303	5097	6933	111	265
BATHROOM	147	2035	1345	44	51
CLOSET	102	238	132	5	5
MUDROOM	92	423	201	9	8
BEDROOM 1	225	4495	3149	98	120
BATHROOM 1	90	1330	710	29	27
BEDROOM 2	243	3900	3651	85	140
HALLWAY	54	0	0	0	0
LIVING/KITCHEN	1076	11805	12979	256	496

Calculations approved by ACCA to meet all requirements of Manual J 8th Ed.

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Residential Plans Examiner Review Form for HVAC System Design (Loads, Equipment, Ducts)

ACCA Air Conditioning Contractors of America

Form RPER 1
15 Mar 09

San Luis Obispo County
Header Information

Contractor: Jim Reed CAD Service
Mechanical license:
Building plan #:
Home address (Street or Lot#, Block, Subdivision): Lot 160 Lakeside Village, Entire House

REQUIRED ATTACHMENTS	ATTACHED	
Manual J1 Form (and supporting worksheets):	Yes ☐	No ☐
or MJ1AE Form* (and supporting worksheets):	Yes ☐	No ☐
OEM performance data (heating, cooling, blower):	Yes ☐	No ☐
Manual D Friction Rate Worksheet:	Yes ☐	No ☐
Duct distribution sketch:	Yes ☐	No ☐

HVAC LOAD CALCULATION (IRC M1401.3)

Design Conditions

Winter Design Conditions
Outdoor temperature: 29 °F
Indoor temperature: 68 °F
Total heat loss: 29324 Btuh

Summer Design Conditions
Outdoor temperature: 99 °F
Indoor temperature: 75 °F
Grains difference: 27 gr/lb @17% RH
Sensible heat gain: 29100 Btuh
Latent heat gain: 1394 Btuh
Total heat gain: 30493 Btuh

Building Construction Information

Building
Orientation: House Front faces South
North, East, West, South, Northeast, Northwest, Southeast, Southwest
Number of bedrooms: 0
Conditioned floor area: 2331 ft²
Number of occupants: 0

Windows
Eave overhang depth: 2.0 ft
Internal shade: none
Blinds, drapes, etc.
Number of skylights: 0

Roof / Eave Depth / Window

HVAC EQUIPMENT SELECTION (IRC M1401.3)

Heating Equipment Data

Equipment type: Prop furnace
Furnace, Heat pump, Boiler, etc.
Model: Carrier 58STX045-08
Heating output capacity: 34000 Btuh
Heat pumps - capacity at winter design outdoor conditions
Aux. heating output capacity: 0 Btuh

Cooling Equipment Data

Equipment type: Split AC
Air Conditioner, Heat pump, etc.
Model: Carrier 38HDR036-31
Total cooling capacity: 0 Btuh
Sensible cooling capacity: 0 Btuh
Latent cooling capacity: 0 Btuh

Blower Data

Heating cfm: 637
Cooling cfm: 1113
Static pressure: 0.60 in H2O
Fan's rated external static pressure for design airflow

HVAC DUCT DISTRIBUTION SYSTEM DESIGN (IRC M1601.1)

Design airflow: 1113 cfm
Equipment design ESP: 0.60 in H2O
Total device pressure losses: 0 in H2O
Available static pressure (ASP): 0.60 in H2O

Longest supply duct: 207 ft
Longest return duct: 67 ft
Total effective length (TEL): 274 ft
Friction rate: 0.219 in/100ft
Friction Rate = ASP × (TEL ÷ 100)

Duct Materials Used
Trunk duct: Round flex vinyl
Branch duct: Round flex vinyl

I declare the load calculation, equipment, equipment selection and duct design were rigorously performed based on the building plan listed above. I understand the claims made on these forms will be subject to review and verification.

Contractor's printed name: ____________

Contractor's signature: ____________ Date: ____________

Reserved for County, Town Municipality or Authority having jurisdiction use.

*Home qualifies for MJ1AE Form based on Abridged Edition Checklist

wrightsoft Right-Suite® Universal 2017 17.0.16 RSU22474

Manual S Compliance Report
Entire House
Jim Reed CAD Service

Job:
Date: Feb 08, 2017
By: Jim Reed

610 10th Street, Paso Robles, Ca 93446 Phone: 805 239 8670 Email: reed708@sbcglobal.net

Project Information

For: Capps, Capps Construction
Lot 160 Lakeside Village, Heritage Ranch/ Paso Robles, Ca 93446

Cooling Equipment

Design Conditions

Outdoor design DB: 98.8°F
Outdoor design WB: 66.6°F
Indoor design DB: 75.0°F
Indoor RH: 17%
Sensible gain: 29100 Btuh
Latent gain: 1394 Btuh
Total gain: 30493 Btuh
Estimated airflow: 1113 cfm
Entering coil DB: 76.8°F
Entering coil WB: 52.8°F

Manufacturer's Performance Data at Actual Design Conditions

Equipment type: Split AC
Manufacturer: Carrier Model: 38HDR036-31+PL36H210P74(6,9)++TD
Actual airflow: 1113 cfm
Sensible capacity: 0 Btuh 0% of load
Latent capacity: 0 Btuh 0% of load
Total capacity: 0 Btuh 0% of load SHR: 0%

Heating Equipment

Design Conditions

Outdoor design DB: 29.0°F
Indoor design DB: 68.0°F
Heat loss: 29324 Btuh
Entering coil DB: 65.8°F

Manufacturer's Performance Data at Actual Design Conditions

Equipment type: Prop furnace
Manufacturer: Carrier Model: 58STX045-08
Actual airflow: 637 cfm
Output capacity: 34000 Btuh 116% of load
Temp. rise: 50 °F

Meets are all requirements of ACCA Manual S.

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Duct System Summary
Entire House
Jim Reed CAD Service

Job:
Date: Feb 08, 2017
By: Jim Reed

610 10th Street, Paso Robles, Ca 93446 Phone: 805 239 8670 Email: reed708@sbcglobal.net

Project Information

For: Capps, Capps Construction
Lot 160 Lakeside Village, Heritage Ranch/ Paso Robles, Ca 93446

	Heating	Cooling
External static pressure	0.60 in H2O	0.60 in H2O
Pressure losses	0 in H2O	0 in H2O
Available static pressure	0.60 in H2O	0.60 in H2O
Supply / return available pressure	0.453 / 0.147 in H2O	0.453 / 0.147 in H2O
Lowest friction rate	0.219 in/100ft	0.219 in/100ft
Actual air flow	637 cfm	1113 cfm
Total effective length (TEL)	274 ft	

Supply Branch Detail Table

Name		Design (Btuh)	Htg (cfm)	Clg (cfm)	Design FR	Diam (in)	H x W (in)	Duct Matl	Actual Ln (ft)	Ftg.Eqv Ln (ft)	Trunk
BATHROOM	c	1345	53	62	0.235	5.0	0x0	VIFx	22.7	170.0	st2A
BATHROOM 1	h	1330	35	33	0.319	4.0	0x0	VIFx	27.2	115.0	st1
BEDROOM	c	3466	66	159	0.219	7.0	0x0	VIFx	27.2	180.0	st2A
BEDROOM 1	c	3149	117	145	0.241	7.0	0x0	VIFx	48.2	140.0	st1A
BEDROOM 2	c	3651	102	168	0.227	8.0	0x0	VIFx	49.8	150.0	st1A
BEDROOM-A	c	3466	66	159	0.254	7.0	0x0	VIFx	33.5	145.0	st2
CLOSET	h	238	6	6	0.316	4.0	0x0	VIFx	13.3	130.0	st2
LIVING/KITCHEN	c	3247	77	149	0.346	7.0	0x0	VIFx	31.0	100.0	st2
LIVING/KITCHEN-A	c	3245	77	149	0.338	7.0	0x0	VIFx	34.2	100.0	st1
LIVING/KITCHEN-B	c	3245	77	149	0.325	7.0	0x0	VIFx	24.5	115.0	st2
LIVING/KITCHEN-C	c	3245	77	149	0.426	7.0	0x0	VIFx	21.3	85.0	st1
MUDROOM	h	423	11	9	0.507	4.0	0x0	VIFx	4.3	85.0	st2

Supply Trunk Detail Table

Name	Trunk Type	Htg (cfm)	Clg (cfm)	Design FR	Veloc (fpm)	Diam (in)	H x W (in)	Duct Material	Trunk
st1A	Peak AVF	219	312	0.227	572	10.0	0 x 0	VinlFlx	st1
st1	Peak AVF	407	643	0.227	601	14.0	0 x 0	VinlFlx	
st2	Peak AVF	357	693	0.219	496	16.0	0 x 0	VinlFlx	
st2A	Peak AVF	119	221	0.219	500	9.0	0 x 0	VinlFlx	st2

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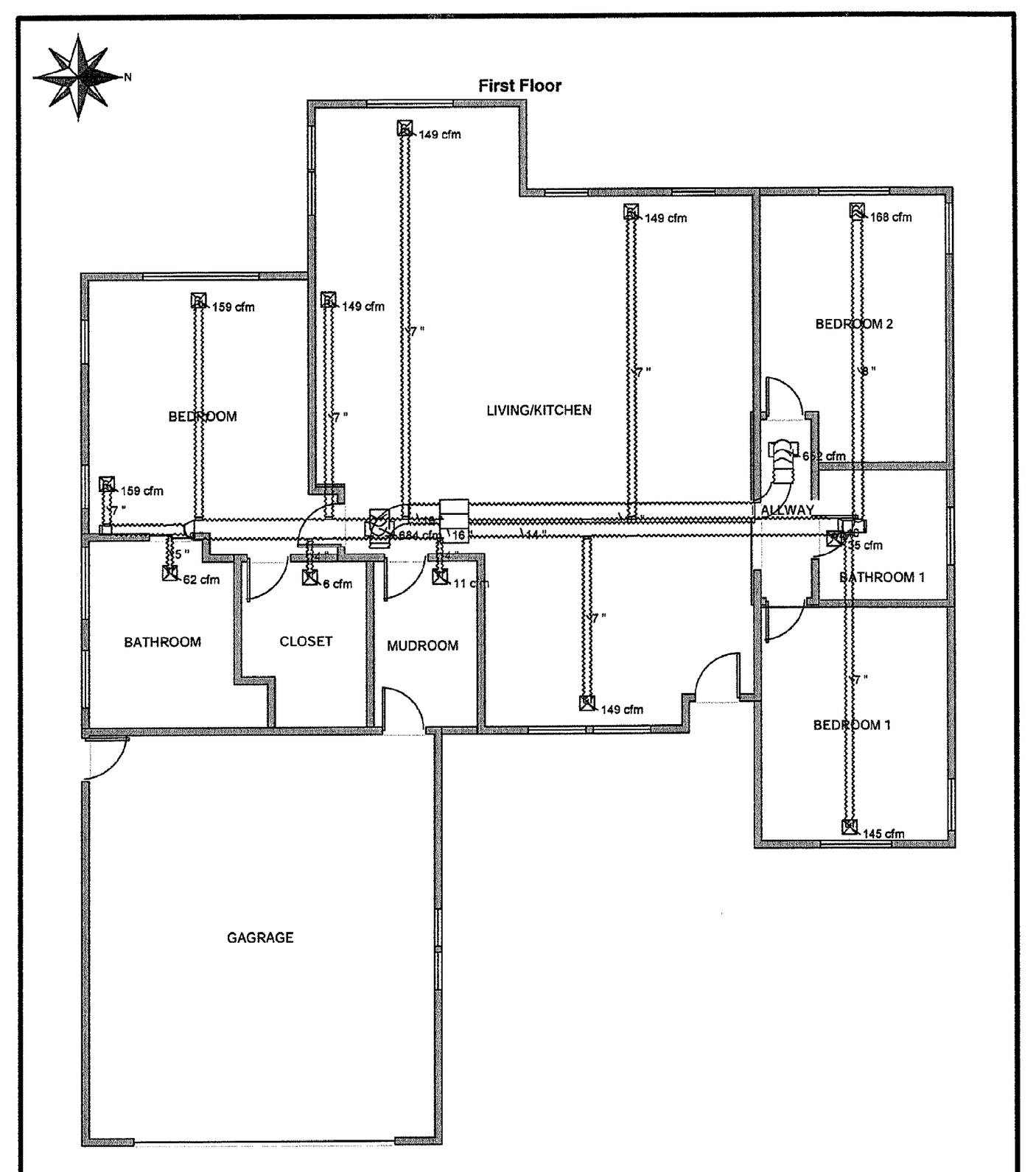

Job #: Performed by Jim Reed for:	Jim Reed CAD Service	Scale: 1 : 104
Capps Lot 160 Lakeside Village Heritage Ranch/ Paso Robles, Ca 93446	610 10th Street Paso Robles, Ca 93446 Phone: 805 239 8670 reed708@sbcglobal.net	Page 1 Right-Suite® Universal 2017 17.0.16 RSU22474 2017-Feb-08 12:05:36 ...soft HVAC\Demo\Capps lot 106.rup

Right-J® Worksheet
Entire House
Jim Reed CAD Service

Job:
Date: Feb 08, 2017
By: Jim Reed

610 10th Street, Paso Robles, Ca 93446 Phone: 805 239 8670 Email: reed708@sbcglobal.net

		HALLWAY	LIVING/KITCHEN
1	Room name	HALLWAY	LIVING/KITCHEN
2	Exposed wall	4.0 ft	70.3 ft
3	Room height	9.0 ft heat/cool	9.0 ft heat/cool
4	Room dimensions	4.2 x 12.9 ft	1.0 x 1076.3 ft
5	Room area	53.8 ft²	1076.3 ft²

	Ty	Construction number	U-value (Btuh/ft²-°F)	Or	HTM Heat	HTM Cool	HALLWAY Area Gross	N/P/S	Load Heat	Load Cool	LIVING/KITCHEN Area Gross	N/P/S	Load Heat	Load Cool
6	W	12C-0sw	0.091	n	3.55	1.94	0	0	0	0	77	77	271	149
	G	1D-c2ow	0.570	n	22.23	22.34	0	0	0	0	0	0	0	0
	G	1D-c2ow	0.570	n	22.23	22.34	0	0	0	0	0	0	0	0
	G	1D-c2ow	0.570	n	22.23	22.34	0	0	0	0	0	0	0	0
11	W	12C-0sw	0.091	e	3.55	1.94	36	13	47	26	173	108	383	210
	G	1D-c2ow	0.570	e	22.23	54.17	0	0	0	0	0	0	0	0
	G	1D-c2ow	0.570	e	22.23	55.39	0	0	0	0	40	5	889	2215
	D	11D0	0.390	e	15.21	10.28	23	23	345	233	25	25	375	253
	W	12C-0sw	0.091	s	3.55	1.94	0	0	0	0	107	77	271	149
	G	1D-c2ow	0.570	s	22.23	22.34	0	0	0	0	0	0	0	0
	G	1D-c2ow	0.570	s	22.23	22.34	0	0	0	0	30	30	667	670
	G	1D-c2ow	0.570	s	22.23	22.34	0	0	0	0	0	0	0	0
	W	12C-0sw	0.091	w	3.55	1.94	0	0	0	0	278	207	734	402
	G	1D-c2ow	0.570	w	22.23	54.17	0	0	0	0	0	0	0	0
	G	1D-c2ow	0.570	w	22.23	55.39	0	0	0	0	30	4	667	1662
	G	1D-c2ow	0.570	w	22.23	56.26	0	0	0	0	0	0	0	0
	G	1D-c2ow	0.570	w	22.23	56.67	0	0	0	0	41	4	907	2312
	C	16ER-38td	0.026	-	1.01	0.65	53	53	54	35	1076	1076	1091	695
	F	19C-19cscp	0.049	-	0.66	0.40	53	53	35	22	1076	1076	713	435

		HALLWAY Heat	HALLWAY Cool	LIVING/KITCHEN Heat	LIVING/KITCHEN Cool
6	c) AED excursion		-12		535
	Envelope loss/gain	462	303	6969	9687
12	a) Infiltration	71	19	1248	326
	b) Room ventilation	0	0	0	0
13	Internal gains: Occupants @ 230 (0 / 0) Appliances/other		0 / 0		0 / 0
	Subtotal (lines 6 to 13)	553	322	8217	10012
	Less external load	0	0	0	0
	Less transfer	0	0	0	0
	Redistribution	-553	-322	243	141
14	Subtotal	0	0	8460	10154
15	Duct loads (40% / 28%)	0	0	3345	2826
	Total room load	0	0	11805	12979
	Air required (cfm)	0	0	256	496

Calculations approved by ACCA to meet all requirements of Manual J 8th Ed.

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Right-J® Worksheet
Entire House
Jim Reed CAD Service

Job:
Date: Feb 08, 2017
By: Jim Reed

610 10th Street, Paso Robles, Ca 93446 Phone: 805 239 8670 Email: reed708@sbcglobal.net

		BATHROOM 1	BEDROOM 2
1	Room name	BATHROOM 1	BEDROOM 2
2	Exposed wall	9.7 ft	32.5 ft
3	Room height	9.0 ft heat/cool	9.0 ft heat/cool
4	Room dimensions	9.5 x 9.5 ft	1.0 x 242.5 ft
5	Room area	90.3 ft²	242.5 ft²

	Ty	Construction number	U-value (Btuh/ft²-°F)	Or	HTM Heat	HTM Cool	BATHROOM 1 Area Gross	N/P/S	Load Heat	Load Cool	BEDROOM 2 Area Gross	N/P/S	Load Heat	Load Cool
6	W	12C-0sw	0.091	n	3.55	1.94	86	78	275	151	171	157	557	305
	G	1D-c2ow	0.570	n	22.23	22.34	8	0	178	179	0	0	0	0
	G	1D-c2ow	0.570	n	22.23	22.34	0	0	0	0	14	0	311	313
	G	1D-c2ow	0.570	n	22.23	22.34	0	0	0	0	0	0	0	0
11	W	12C-0sw	0.091	e	3.55	1.94	0	0	0	0	0	0	0	0
	G	1D-c2ow	0.570	e	22.23	54.17	0	0	0	0	0	0	0	0
	G	1D-c2ow	0.570	e	22.23	55.39	0	0	0	0	0	0	0	0
	D	11D0	0.390	e	15.21	10.28	0	0	0	0	0	0	0	0
	W	12C-0sw	0.091	s	3.55	1.94	2	2	5	3	0	0	0	0
	G	1D-c2ow	0.570	s	22.23	22.34	0	0	0	0	0	0	0	0
	G	1D-c2ow	0.570	s	22.23	22.34	0	0	0	0	0	0	0	0
	G	1D-c2ow	0.570	s	22.23	22.34	0	0	0	0	0	0	0	0
	W	12C-0sw	0.091	w	3.55	1.94	0	0	0	0	122	102	360	197
	G	1D-c2ow	0.570	w	22.23	54.17	0	0	0	0	20	3	445	1083
	G	1D-c2ow	0.570	w	22.23	55.39	0	0	0	0	0	0	0	0
	G	1D-c2ow	0.570	w	22.23	56.26	0	0	0	0	0	0	0	0
	G	1D-c2ow	0.570	w	22.23	56.67	0	0	0	0	0	0	0	0
	C	16ER-38td	0.026	-	1.01	0.65	90	90	92	58	243	243	246	157
	F	19C-19cscp	0.049	-	0.66	0.40	90	90	60	36	243	243	161	98

		BATHROOM 1 Heat	BATHROOM 1 Cool	BEDROOM 2 Heat	BEDROOM 2 Cool
6	c) AED excursion		-17		472
	Envelope loss/gain	610	410	2080	2625
12	a) Infiltration	172	45	577	151
	b) Room ventilation	0	0	0	0
13	Internal gains: Occupants @ 230 (0 / 0) Appliances/other		0 / 0		0 / 0
	Subtotal (lines 6 to 13)	781	455	2657	2776
	Less external load	0	0	0	0
	Less transfer	0	0	0	0
	Redistribution	172	100	138	80
14	Subtotal	953	555	2795	2856
15	Duct loads (40% / 28%)	377	155	1105	795
	Total room load	1330	710	3900	3651
	Air required (cfm)	29	27	85	140

Calculations approved by ACCA to meet all requirements of Manual J 8th Ed.

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Right-J® Worksheet
Entire House
Jim Reed CAD Service

Job:
Date: Feb 08, 2017
By: Jim Reed

610 10th Street, Paso Robles, Ca 93446 Phone: 805 239 8670 Email: reed708@sbcglobal.net

		MUDROOM	BEDROOM 1
1	Room name	MUDROOM	BEDROOM 1
2	Exposed wall	3.0 ft	44.3 ft
3	Room height	9.0 ft heat/cool	9.0 ft heat/cool
4	Room dimensions	7.7 x 12.0 ft	13.5 x 16.7 ft
5	Room area	92.0 ft²	225.0 ft²

	Ty	Construction number	U-value (Btuh/ft²-°F)	Or	HTM Heat	HTM Cool	MUDROOM Area Gross	N/P/S	Load Heat	Load Cool	BEDROOM 1 Area Gross	N/P/S	Load Heat	Load Cool
6	W	12C-0sw	0.091	n	3.55	1.94	0	0	0	0	150	136	481	264
	G	1D-c2ow	0.570	n	22.23	22.34	0	0	0	0	0	0	0	0
	G	1D-c2ow	0.570	n	22.23	22.34	0	0	0	0	0	0	0	0
	G	1D-c2ow	0.570	n	22.23	22.34	0	0	0	0	14	0	319	320
11	W	12C-0sw	0.091	e	3.55	1.94	27	27	96	52	122	102	360	197
	G	1D-c2ow	0.570	e	22.23	54.17	0	0	0	0	20	3	445	1083
	G	1D-c2ow	0.570	e	22.23	55.39	0	0	0	0	0	0	0	0
	D	11D0	0.390	e	15.21	10.28	0	0	0	0	0	0	0	0
	W	12C-0sw	0.091	s	3.55	1.94	0	0	0	0	92	92	325	178
	G	1D-c2ow	0.570	s	22.23	22.34	0	0	0	0	0	0	0	0
	G	1D-c2ow	0.570	s	22.23	22.34	0	0	0	0	0	0	0	0
	G	1D-c2ow	0.570	s	22.23	22.34	0	0	0	0	0	0	0	0
	W	12C-0sw	0.091	w	3.55	1.94	0	0	0	0	36	36	128	70
	G	1D-c2ow	0.570	w	22.23	54.17	0	0	0	0	0	0	0	0
	G	1D-c2ow	0.570	w	22.23	55.39	0	0	0	0	0	0	0	0
	G	1D-c2ow	0.570	w	22.23	56.26	0	0	0	0	0	0	0	0
	G	1D-c2ow	0.570	w	22.23	56.67	0	0	0	0	0	0	0	0
	C	16ER-38td	0.026	-	1.01	0.65	92	92	93	59	225	225	228	145
	F	19C-19cscp	0.049	-	0.66	0.40	92	92	61	37	225	225	149	91

		MUDROOM Heat	MUDROOM Cool	BEDROOM 1 Heat	BEDROOM 1 Cool
6	c) AED excursion		-6		-90
	Envelope loss/gain	250	143	2435	2258
12	a) Infiltration	53	14	787	205
	b) Room ventilation	0	0	0	0
13	Internal gains: Occupants @ 230 (0 / 0) Appliances/other		0 / 0		0 / 0
	Subtotal (lines 6 to 13)	303	157	3222	2464
	Less external load	0	0	0	0
	Less transfer	0	0	0	0
	Redistribution	0	0	0	0
14	Subtotal	303	157	3222	2464
15	Duct loads (40% / 28%)	120	44	1274	686
	Total room load	423	201	4495	3149
	Air required (cfm)	9	8	98	120

Calculations approved by ACCA to meet all requirements of Manual J 8th Ed.

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Right-J® Worksheet
Entire House
Jim Reed CAD Service

Job:
Date: Feb 08, 2017
By: Jim Reed

610 10th Street, Paso Robles, Ca 93446 Phone: 805 239 8670 Email: reed708@sbcglobal.net

		BATHROOM	CLOSET
1	Room name	BATHROOM	CLOSET
2	Exposed wall	13.5 ft	0 ft
3	Room height	9.0 ft heat/cool	9.0 ft heat/cool
4	Room dimensions	1.0 x 146.7 ft	1.0 x 101.8 ft
5	Room area	146.7 ft²	101.8 ft²

	Ty	Construction number	U-value (Btuh/ft²-°F)	Or	HTM Heat	HTM Cool	BATHROOM Area Gross	N/P/S	Load Heat	Load Cool	CLOSET Area Gross	N/P/S	Load Heat	Load Cool
6	W	12C-0sw	0.091	n	3.55	1.94	0	0	0	0	0	0	0	0
	G	1D-c2ow	0.570	n	22.23	22.34	0	0	0	0	0	0	0	0
	G	1D-c2ow	0.570	n	22.23	22.34	0	0	0	0	0	0	0	0
	G	1D-c2ow	0.570	n	22.23	22.34	0	0	0	0	0	0	0	0
11	W	12C-0sw	0.091	e	3.55	1.94	0	0	0	0	0	0	0	0
	G	1D-c2ow	0.570	e	22.23	54.17	0	0	0	0	0	0	0	0
	G	1D-c2ow	0.570	e	22.23	55.39	0	0	0	0	0	0	0	0
	D	11D0	0.390	e	15.21	10.28	0	0	0	0	0	0	0	0
	W	12C-0sw	0.091	s	3.55	1.94	122	93	328	180	0	0	0	0
	G	1D-c2ow	0.570	s	22.23	22.34	4	4	89	89	0	0	0	0
	G	1D-c2ow	0.570	s	22.23	22.34	0	0	0	0	0	0	0	0
	G	1D-c2ow	0.570	s	22.23	22.34	25	25	556	559	0	0	0	0
	W	12C-0sw	0.091	w	3.55	1.94	0	0	0	0	0	0	0	0
	G	1D-c2ow	0.570	w	22.23	54.17	0	0	0	0	0	0	0	0
	G	1D-c2ow	0.570	w	22.23	55.39	0	0	0	0	0	0	0	0
	G	1D-c2ow	0.570	w	22.23	56.26	0	0	0	0	0	0	0	0
	G	1D-c2ow	0.570	w	22.23	56.67	0	0	0	0	0	0	0	0
	C	16ER-38td	0.026	-	1.01	0.65	147	147	149	95	102	102	103	66
	F	19C-19cscp	0.049	-	0.66	0.40	147	147	97	59	102	102	67	41

		BATHROOM Heat	BATHROOM Cool	CLOSET Heat	CLOSET Cool
6	c) AED excursion		8		-4
	Envelope loss/gain	1219	989	171	103
12	a) Infiltration	240	63	0	0
	b) Room ventilation	0	0	0	0
13	Internal gains: Occupants @ 230 (0 / 0) Appliances/other		0 / 0		0 / 0
	Subtotal (lines 6 to 13)	1458	1052	171	103
	Less external load	0	0	0	0
	Less transfer	0	0	0	0
	Redistribution	0	0	0	0
14	Subtotal	1458	1052	171	103
15	Duct loads (40% / 28%)	577	293	68	29
	Total room load	2035	1345	238	132
	Air required (cfm)	44	51	5	5

Calculations approved by ACCA to meet all requirements of Manual J 8th Ed.

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Return Branch Detail Table

Name	Grille Size (in)	Htg (cfm)	Clg (cfm)	TEL (ft)	Design FR	Veloc (fpm)	Diam (in)	H x W (in)	Stud/Joist Opening (in)	Duct Matl	Trunk
rb1	0x0	346	684	46.2	0.318	490	16.0	0x 0		VIFx	
rb2	0x0	418	652	67.2	0.219	467	16.0	0x 0		VIFx	

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\\jbdrafting\projects\capps, Devon\lOT#106\LOT 106\Sheets\MP-1 MECHANICAL PLAN.dwg Johnny Kudla 3/30/2017 1:22:18 PM

DUCT DYNASTY
Title 24 | HERS Rating | Duct Plans & Testing
ID# CC2006321

PLAN PREPARED FOR:
KIRK & CARRIE ALLEN
LOT 106 TRACT 1990-2
PASO ROBLES, CA 93446

REVISION LOG

REV.	DESCRIPTION	DATE

PROJECT NO. ----
FILE NAME MP-1 MECHANICAL PLAN.DWG
DRAWN BY JJK
DATE 3/31/2017 8:00 AM
SHEET TITLE:
MECHANICAL PLAN

SHEET NUMBER:
MP-1

SITE DEVELOPEMENT:

4.106.1 GENERAL. PRESERVATION AND USE OF AVAILABLE NATURAL RESOURCES SHALL BE ACCOMPLISHED THROUGH EVALUATION AND CAREFUL PLANNING TO MINIMIZE NEGATIVE EFFECTS ON THE SITE AND ADJACENT AREAS. PRESERVATION OF SLOPES, MANAGEMENT OF STORM WATER DRAINAGE AND EROSION CONTROLS SHALL COMPLY WITH THIS SECTION.

4.106.2 STORM WATER DRAINAGE AND RETENTION DURING CONSTRUCTION. PROJECTS WHICH DISTURB LESS THAN ONE ACRE OF SOIL AND ARE NOT PART OF A LARGER COMMON PLAN OF DEVELOPMENT WHICH IN TOTAL DISTURBS ONE ACRE OR MORE, SHALL MANAGE STORM WATER DRAINAGE DURING CONSTRUCTION. IN ORDER TO MANAGE STORM WATER DRAINAGE DURING CONSTRUCTION, ONE OR MORE OF THE FOLLOWING MEASURES SHALL BE IMPLEMENTED TO PREVENT FLOODING OF ADJACENT PROPERTY, PREVENT EROSION AND RETAIN SOIL RUNOFF ON THE SITE.

1. RETENTION BASINS OF SUFFICIENT SIZE SHALL BE UTILIZED TO RETAIN STORM WATER ON THE SITE.
2. WHERE STORM WATER IS CONVEYED TO A PUBLIC DRAINAGE SYSTEM, COLLECTION POINT, GUTTER OR SIMILAR DISPOSAL METHOD, WATER SHALL BE FILTERED BY USE OF A BARRIER SYSTEM, WATTLE OR OTHER METHOD APPROVED BY THE ENFORCING AGENCY.
3. COMPLIANCE WITH A LAWFULLY ENACTED STORM WATER MANAGEMENT ORDINANCE.

4.106.3 GRADING AND PAVING. CONSTRUCTION PLANS SHALL INDICATE HOW THE SITE GRADING OR DRAINAGE SYSTEM WILL MANAGE ALL SURFACE WATER FLOWS TO KEEP WATER FROM ENTERING BUILDINGS. EXAMPLES OF METHODS TO MANAGE SURFACE WATER INCLUDE, BUT ARE NOT LIMITED TO, THE FOLLOWING:

I. SWALES
2. WATER COLLECTION AND DISPOSAL SYSTEMS
3. FRENCH DRAINS
4. WATER RETENTION GARDENS
5. OTHER WATER MEASURES WHICH KEEP SURFACE WATER AWAY FROM BUILDINGS AND AID IN GROUNDWATER RECHARGE. EXCEPTION: ADDITIONS AND ALTERATIONS NOT ALTERING THE DRAINAGE PATH.

INDOOR WATER USE:

4.303.1 WATER CONSERVING PLUMBING FIXTURES AND FITTINGS. PLUMBING FIXTURES (WATER CLOSETS AND URINALS) AND FITTINGS (FAUCETS AND SHOWERHEADS) SHALL COMPLY WITH THE FOLLOWING:

4.303.1.1 WATER CLOSETS. THE EFFECTIVE FLUSH VOLUME OF ALL WATER CLOSETS SHALL NOT EXCEED 1.28 GALLONS PER FLUSH. TANK -TYPE WATER CLOSETS SHALL BE CERTIFIED TO THE PERFORMANCE CRITERIA OF THE U.S. EPA WATER SENSE SPECIFICATION FOR TANK-TYPE TOILETS. NOTE: THE EFFECTIVE FLUSH VOLUME OF DUAL FLUSH TOILETS IS DEFINED AS THE COMPOSITE, AVERAGE FLUSH VOLUME OF TWO REDUCED FLUSHES AND ONE FULL FLUSH.

4.**303.1.2 URINALS.** THE EFFECTIVE FLUSH VOLUME OF URINALS SHALL NOT EXCEED 0.5 GALLONS PER FLUSH.

4.303.1.3 SHOWERHEADS:

4.303.1.3.1 SINGLE SHOWERHEAD. SHOWERHEADS SHALL HAVE A MAXIMUM FLOW RATE OF NOT MORE THAN 2.0 GALLONS PER MINUTE AT 80 PSI. SHOWERHEADS SHALL BE CERTIFIED TO THE PERFORMANCE CRITERIA OF THE U.S. EPA WATER SENSE SPECIFICATION FOR SHOWERHEADS.

4.303.1.3.2 MULTIPLE SHOWERHEADS SERVING ONE SHOWER. WHEN A SHOWER IS SERVED BY MORE THAN ONE SHOWERHEAD, THE COMBINED FLOW RATE OF ALL SHOWERHEADS AND/OR OTHER SHOWER OUTLETS CONTROLLED BY A SINGLE VALVE SHALL NOT EXCEED 2.0 GALLONS PER MINUTE AT 80 PSI, OR THE SHOWER SHALL BE DESIGNED TO ALLOW ONLY ONE SHOWER OUTLET TO BE IN OPERATION AT A TIME. NOTE: A HAND-HELD SHOWER SHALL BE CONSIDERED A SHOWERHEAD.

4.303.1.4 FAUCETS:

4.303.1.4.1 RESIDENTIAL LAVATORY FAUCETS . THE MAXIMUM FLOW RATE OF RESIDENTIAL LAVATORY FAUCETS SHALL NOT EXCEED 1.5 GALLONS PER MINUTE AT 60 PSI. THE MINIMUM FLOW RATE OF RESIDENTIAL LAVATORY FAUCETS SHALL NOT BE LESS THAN 0.8 GALLONS PER MINUTE AT 20 PSI.

4.303.1.4.2 LAVATORY FAUCETS IN COMMON AND PUBLIC USE AREAS. THE MAXIMUM FLOW RATE OF LAVATORY FAUCETS INSTALLED IN COMMON AND PUBLIC USE AREAS (OUTSIDE OF DWELLINGS OR SLEEPING UNITS) IN RESIDENTIAL BUILDINGS SHALL NOT EXCEED 0.5 GALLONS PER MINUTE AT 60 PSI.

4.303.1.4.3 METERING FAUCETS. METERING FAUCETS WHEN INSTALLED IN RESIDENTIAL BUILDINGS SHALL NOT DELIVER MORE THAN 0.25 GALLONS PER CYCLE.

4.303.1.4.4 KITCHEN FAUCETS. THE MAXIMUM FLOW RATE OF KITCHEN FAUCETS SHALL NOT EXCEED 1.8 GALLONS PER MINUTE AT 60 PSI. KITCHEN FAUCETS MAY TEMPORARILY INCREASE THE FLOW ABOVE THE MAXIMUM RATE, BUT NOT TO EXCEED 2.2 GALLONS PER MINUTE AT 60 PSI, AND MUST DEFAULT TO A MAXIMUM FLOW RATE OF 1.8 GALLONS PER MINUTE AT 60 PSI. NOTE: WHERE COMPLYING FAUCETS ARE UNAVAILABLE, AERATORS OR OTHER MEANS MAY BE USED TO ACHIEVE REDUCTION.

4.303.2 STANDARDS FOR PLUMBING FIXTURES AND FITTINGS. PLUMBING FIXTURES AND FITTINGS SHALL BE INSTALLED IN ACCORDANCE WITH THE CALIFORNIA PLUMBING CODE, AND SHALL MEET THE APPLICABLE STANDARDS REFERENCED IN TABLE 1401.1 OF THE CALIFORNIA PLUMBING CODE. SEC"NON 4.304

OUTDOOR WATER USE:

4.304.1 IRRIGATION CONTROLLERS. AUTOMATIC IRRIGATION SYSTEM CONTROLLERS FOR LANDSCAPING PROVIDED BY THE BUILDER AND INSTALLED AT THE TIME OF FINAL INSPECTION SHALL COMPLY WITH THE FOLLOWING:

1. CONTROLLERS SHALL BE WEATHER- OR SOIL MOISTURE-BASED CONTROLLERS THAT AUTOMATICALLY ADJUST IRRIGATION IN RESPONSE TO CHANGES IN PLANTS' NEEDS AS WEATHER CONDITIONS CHANGE.
2. WEATHER-BASED CONTROLLERS WITHOUT INTEGRAL RAIN SENSORS OR COMMUNICATION SYSTEMS THAT ACCOUNT FOR LOCAL RAINFALL SHALL HAVE A SEPARATE WIRED OR WIRELESS RAIN SENSOR WHICH CONNECTS OR COMMUNICATES WITH THE CONTROLLER(S). SOIL MOISTURE-BASED CONTROLLERS ARE NOT REQUIRED TO HAVE RAIN SENSOR INPUT. NOTE: MORE INFORMATION REGARDING IRRIGATION CONTROLLER FUNCTION AND SPECIFICATIONS IS AVAILABLE FROM THE IRRIGATION ASSOCIATION.

ENHANCED DURABILITY AND REDUCED MAINTENANCE:

4.406.1 RODENT PROOFING. ANNULAR SPACES AROUND PIPES, ELECTRIC CABLES, CONDUITS OR OTHER OPENINGS IN-SOLEBOTTOM PLATES AT EXTERIOR WALLS SHALL BE PROTECTED AGAINST THE PASSAGE OF RODENTS BY CLOSING SUCH OPENINGS WITH CEMENT MORTAR, CONCRETE MASONRY OR A SIMILAR METHOD ACCEPTABLE TO THE ENFORCING AGENCY.

CONSTRUCTION WASTE REDUCTION, DISPOSAL AND RECYCLING:

4.408.1 CONSTRUCTION WASTE MANAGEMENT. RECYCLE AND/OR SALVAGE FOR REUSE A MINIMUM OF 70 PERCENT OF THE NON-HAZARDOUS CONSTRUCTION AND DEMOLITION WASTE IN ACCORDANCE WITH EITHER SECTION 4.408.2, 4.408.3 OR 4.408.4, OR MEET A MORE STRINGENT LOCAL CONSTRUCTION AND DEMOLITION WASTE MANAGEMENT ORDINANCE. EXCEPTIONS:

1. EXCAVATED SOIL AND LAND-CLEARING DEBRIS.
2. ALTERNATE WASTE REDUCTION METHODS DEVELOPED BY WORKING WITH LOCAL AGENCIES IF DIVERSION OR RECYCLE FACILITIES CAPABLE OF COMPLIANCE WITH THIS ITEM DO NOT EXIST OR ARE NOT LOCATED REASONABLY CLOSE TO THE JOBSITE.
3. THE ENFORCING AGENCY MAY MAKE EXCEPTIONS TO THE REQUIREMENTS OF THIS SECTION WHEN ISOLATED JOB-SITES ARE LOCATED IN AREAS BEYOND THE HAUL BOUNDARIES OF THE DI VERSION FACILITY.

4.408.2 CONSTRUCTION WASTE MANAGEMENT PLAN. SUBMIT A CONSTRUCTION WASTE MANAGEMENT PLAN IN CONFORMANCE WITH ITEMS 1 THROUGH 5. THE CONSTRUCTION WASTE MANAGEMENT PLAN SHALL BE UPDATED AS NECESSARY AND SHALL BE AVAILABLE DURING CONSTRUCTION FOR EXAMINATION BY THE ENFORCING AGENCY.

1. IDENTIFY THE CONSTRUCTION AND DEMOLITION WASTE MATERIALS TO BE DIVERTED FROM DISPOSAL BY RECYCLING, REUSE ON THE PROJECT OR SALVAGE FOR FUTURE USE OR SALE. 2. SPECIFY IF CONSTRUCTION AND DEMOLITION WASTE MATERIALS WILL BE SORTED ON-SITE (SOURCE-SEPARATED) OR BULK MIXED (SINGLE STREAM).
3. IDENTIFY DIVERSION FACILITIES WHERE THE CONSTRUCTION AND DEMOLITION WASTE MATERIAL WILL BE TAKEN.
4. IDENTIFY CONSTRUCTION METHODS EMPLOYED TO REDUCE THE AMOUNT OF CONSTRUCTION AND DEMOLITION WASTE GENERATED.
5. SPECIFY THAT THE AMOUNT OF CONSTRUCTION AND DEMOLITION WASTE MATERIALS DIVERTED SHALL BE CALCULATED BY WEIGHT OR VOLUME, BUT NOT BY BOTH.

4.408.3 WASTE MANAGEMENT COMPANY. UTILIZE A WASTE MANAGEMENT COMPANY, APPROVED BY THE ENFORCING AGENCY, WHICH CAN PROVIDE VERIFIABLE DOCUMENTATION THAT THE PERCENTAGE OF CONSTRUCTION AND DEMOLITION WASTE MATERIAL DIVERTED FROM THE LANDFILL COMPLIES WITH SECTION 4.408.1. NOTE: THE OWNER OR CONTRACTOR MAY MAKE THE DETERMINATION IF THE CONSTRUCTION AND DEMOLITION WASTE MATERIALS WILL BE DIVERTED BY A WASTE MANAGEMENT COMPANY.

4.408.4 WASTE STREAM REDUCTION ALTERNATIVE. PROJECTS THAT GENERATE A TOTAL COMBINED WEIGHT OF CONSTRUCTION AND DEMOLITION WASTE DISPOSED OF IN LANDFILLS, WHICH DO NOT EXCEED FOUR (4) LBS./SQ. FT. OF THE BUILDING AREA SHALL MEET THE MINIMUM 70 PERCENT CONSTRUCTION WASTE REDUCTION REQUIREMENT IN SECTION 4.408.1.

4.408.4.1 WASTE STREAM REDUCTION ALTERNATIVE. [HR] PROJECTS THAT GENERATE A TOTAL COMBINED WEIGHT OF CONSTRUCTION AND DEMOLITION WASTE DISPOSED OF IN LANDFILLS, WHICH DO NOT EXCEED TWO (2) POUNDS PER SQUARE FOOT OF THE BUILDING AREA, SHALL MEET THE MINIMUM 50-PERCENT CONSTRUCTION WASTE REDUCTION REQUIREMENT IN SECTION 4.408.1.

4.408.5 DOCUMENTATION. DOCUMENTATION SHALL BE PROVIDED TO THE ENFORCING AGENCY WHICH DEMONSTRATES COMPLIANCE WITH SECTION 4.408.2, ITEMS 1 THROUGH 5, SECTION 4.408.3 OR SECTION 4.408.4. NOTES:

1. SAMPLE FORMS FOUND IN "A GUIDE TO THE CALIFORNIA GREEN BUILDING STANDARDS CODE (RESIDENTIAL)" LOCATED AT WWW.HCD.CA.GOV/CALGREEN.HTML MAY BE USED TO ASSIST IN DOCUMENTING COMPLIANCE WITH THIS SECTION.
2. MIXED CONSTRUCTION AND DEMOLITION DEBRIS (C&D) PROCESSORS CAN BE LOCATED AT THE CALIFORNIA DEPARTMENT OF RESOURCES RECYCLING AND RECOVERY (CALRECYCLE).

BUILDING MAINTENANCE AND OPERATION:

4.410.1 OPERATION AND MAINTENANCE MANUAL. AT THE TIME OF FINAL INSPECTION, A MANUAL, COMPACT DISC, WEB-BASED REFERENCE OR OTHER MEDIA ACCEPTABLE TO THE ENFORCING AGENCY WHICH INCLUDES ALL OF THE FOLLOWING SHALL BE PLACED IN THE BUILDING:

1. DIRECTIONS TO THE OWNER OR OCCUPANT THAT THE MANUAL SHALL REMAIN WITH THE BUILDING THROUGHOUT THE LIFE CYCLE OF THE STRUCTURE.
2. OPERATION AND MAINTENANCE INSTRUCTIONS FOR THE FOLLOWING:
   A. EQUIPMENT AND APPLIANCES, INCLUDING WATER-SAVING DEVICES AND SYSTEMS, HV AC SYSTEMS, WATER-HEATING SYSTEMS AND OTHER MAJOR APPLIANCES AND EQUIPMENT.
   B. ROOF AND YARD DRAINAGE, INCLUDING GUTTERS AND DOWNSPOUTS.
   C. SPACE CONDITIONING SYSTEMS, INCLUDING CONDENSERS AND AIR FILTERS.
   D. LANDSCAPE IRRIGATION SYSTEMS.
   E. WATER REUSE SYSTEMS.
3. INFORMATION FROM LOCAL UTILITY, WATER AND WASTE RECOVERY PROVIDERS ON METHODS TO FURTHER REDUCE RESOURCE CONSUMPTION, INCLUDING RECYCLE PROGRAMS AND LOCATIONS.
4. PUBLIC TRANSPORTATION AND/OR CARPOOL OPTIONS AVAILABLE IN THE AREA.
5. EDUCATIONAL MATERIAL ON THE POSITIVE IMPACTS OF AN INTERIOR RELATIVE HUMIDITY BETWEEN 30-60 PERCENT AND WHAT METHODS AN OCCUPANT MAY USE TO MAINTAIN THE RELATIVE HUMIDITY LEVEL IN THAT RANGE.
6. INFORMATION ABOUT WATER-CONSERVING LANDSCAPE AND IRRIGATION DESIGN AND CONTROLLERS WHICH CONSERVE WATER.
7. INSTRUCTIONS FOR MAINTAINING GUTTERS AND DOWNSPOUTS AND THE IMPORTANCE OF DIVERTING WATER AT LEAST 5 FEET AWAY FROM THE FOUNDATION.
8. INFORMATION ON REQUIRED ROUTINE MAINTENANCE MEASURES, INCLUDING, BUT NOT LIMITED TO, CAULKING, PAINTING, GRADING AROUND THE BUILDING, ETC.
9. INFORMATION ABOUT STATE SOLAR ENERGY AND INCENTIVE PROGRAMS AVAILABLE.
10. A COPY OF ALL SPECIAL INSPECTION VERIFICATIONS REQUIRED BY THE ENFORCING AGENCY OR THIS CODE. FIREPLACES

4.503.1 GENERAL. ANY INSTALLED GAS FIREPLACE SHALL BE A DIRECT-VENT SEALED-COMBUSTION TYPE. ANY INSTALLED WOOD-STOVE OR PELLET STOVE SHALL COMPLY WITH U.S. EPA PHASE II EMISSION LIMITS WHERE APPLICABLE. WOOD-STOVES, PELLET STOVES AND FIREPLACES SHALL ALSO COMPLY WITH APPLICABLE LOCAL ORDINANCES.

SECTION 4.504 POLLUTANT CONTROL:

4.504.1 COVERING OF DUCT OPENINGS AND PROTECTION OF MECHANICAL EQUIPMENT DURING CONSTRUCTION. AT THE TIME OF ROUGH INSTALLATION, DURING STORAGE ON THE CONSTRUCTION SITE AND UNTIL FINAL STARTUP OF THE HEATING, COOLING AND VENTILATING EQUIPMENT, ALL DUCT AND OTHER RELATED AIR DISTRIBUTION COMPONENT OPENINGS SHALL BE COVERED WITH TAPE, PLASTIC, SHEET METAL OR OTHER METHODS ACCEPTABLE TO THE ENFORCING AGENCY TO REDUCE THE AMOUNT OF WATER, DUST AND DEBRIS, WHICH MAY ENTER THE SYSTEM. 4.504.2 FINISH MATERIAL POLLUTANT CONTROL. FINISH MATERIALS SHALL COMPLY WITH THIS SECTION.

4.504.2.1 ADHESIVES, SEALANTS AND CAULKS. ADHESIVES, SEALANTS AND CAULKS USED ON THE PROJECT SHALL MEET THE REQUIREMENTS OF THE FOLLOWING STANDARDS UNLESS MORE STRIN-GENT LOCAL OR REGIONAL AIR POLLUTION OR AIR QUALITY MANAGEMENT DISTRICT RULES APPLY:

1. ADHESIVES, ADHESIVE BONDING PRIMERS, ADHESIVE PRIMERS, SEALANTS, SEALANT PRIMERS, AND CAULKS SHALL COMPLY WITH LOCAL OR REGIONAL AIR POLLUTION CONTROL OR AIR QUALITYMANAGEMENT DISTRICT RULES WHERE APPLICABLE OR SCAQMD RULE 1168 VOC LIMITS, AS SHOWN IN TABLE 4.504.1 OR 4.504.2, AS APPLICABLE. SUCH PRODUCTS ALSO SHALL COMPLY WITH THE RULE 1168 PROHIBITION ON THE USE OF CERTAIN TOXIC COMPOUNDS (CHLOROFORM, ETHYLENE DICHLORIDE, METHYLENE CHLORIDE, PERCHLOROETHYLENE AND TRICHLOROETHYLENE), EXCEPT FOR AEROSOL PRODUCTS, AS SPECIFIED IN SUBSECTION 2 BELOW.
2. AEROSOL ADHESIVES, AND SMALLER UNIT SIZES OF ADHESIVES, AND SEALANT OR CAULKING COMPOUNDS (IN UNITS OF PRODUCT, LESS PACKAGING, WHICH DO NOT WEIGH MORE THAN 1 POUND AND DO NOT CONSIST OF MORE THAN 16 FLUID OUNCES) SHALL COMPLY WITH STATEWIDE VOC STANDARDS AND OTHER REQUIREMENTS, INCLUDING PROHIBITIONS ON USE OF CERTAIN TOXIC COMPOUNDS, OF CALIFORNIA CODE OF REGULATIONS, TITLE 17, COMMENCING WITH SECTION 94507.

4.504.2.2 PAINTS AND COATINGS. ARCHITECTURAL PAINTS AND COATINGS SHALL COMPLY WITH VOC LIMITS IN TABLE 1 OF THE ARB ARCHITECTURAL SUGGESTED CONTROL MEASURE, AS SHOWN IN TABLE 4.504.3, UNLESS MORE STRINGENT LOCALLIMITS APPLY. THE VOC CONTENT LIMIT FOR COATINGS THAT DO NOT MEET THE DEFINITIONS FOR THE SPECIALTY COATINGS CATEGORIES LISTED IN TABLE 4.504.3 SHALL BE DETERMINED BY CLASSIFYING THE COATING AS A FLAT, NONFLAT OR NONFLAT-HIGH GLOSS COATING, BASED ON ITS GLOSS, AS DEFINED IN SUBSECTIONS 4.21, 4.36, AND 4.3 7 OF THE 2007 CALIFORNIA AIR RESOURCES BOARD, SUGGESTED CONTROL MEASURE, AND THE CORRESPONDING FLAT, NONFLAT OR NONFLAT-HIGH GLOSS VOC LIMIT IN TABLE 4.504.3 SHALL APPLY.

4.504.2.3 AEROSOL PAINTS AND COATINGS. AEROSOL PAINTS AND COATINGS SHALL MEET THE PRODUCT-WEIGHTED MIR LIMITS FOR ROC IN SECTION 94522(A)(3) AND OTHER REQUIREMENTS, INCLUDING PROHIBITIONS ON USE OF CERTAIN TOXIC COMPOUNDS AND OZONE DEPLETING SUBSTANCES, IN SECTIONS 94522(C)(2) AND (D)(2) OF CALIFORNIA CODE OF REGULATIONS, TITLE 17, COMMENCING WITH SECTION 94520; AND IN AREAS UNDER THE JURISDICTION OF THE BAY AREA AIR QUALITY MANAGEMENT DISTRICT ADDITIONALLY COMPLY WITH THE PERCENT VOC BY WEIGHT OF PRODUCT LIMITS OF REGULATION 8, RULE 49.

4.504.2.4 VERIFICATION. VERIFICATION OF COMPLIANCE WITH THIS SECTION SHALL BE PROVIDED AT THE REQUEST OF THE ENFORCING AGENCY. DOCUMENTATION MAY INCLUDE, BUT IS NOT LIMITED TO, THE FOLLOWING:
1. MANUFACTURER'S PRODUCT SPECIFICATION.
2. FIELD VERIFICATION OF ON-SITE PRODUCT CONTAINERS.

4.504.3 CARPET SYSTEMS. ALL CARPET INSTALLED IN THE BUILDING INTERIOR SHALL MEET THE TESTING AND PRODUCT REQUIREMENTS OF ONE OF THE FOLLOWING:
1. CARPET AND RUG INSTITUTE'S GREEN LABEL PLUS PROGRAM.
2. CALIFORNIA DEPARTMENT OF PUBLIC HEALTH, "STANDARD METHOD FOR THE TESTING AND EVALUATION OF VOLATILE ORGANIC CHEMICAL EMISSIONS FROM INDOOR SOURCES U SING ENVIRONMENTAL CHAMBERS," VERSION 1.1, FEBRUARY 2010 (ALSO KNOWN AS SPECIFICATION 01350.)
3. NSF/ANSI 140 AT THE GOLD LEVEL.
4. SCIENTIFIC CERTIFICATIONS SYSTEMS INDOOR ADVANTAGE™GOLD.

4.504.3.1 CARPET CUSHION. ALL CARPET CUSHION INSTALLED IN THE BUILDING INTERIOR SHALL MEET THE REQUIREMENTS OF THE CARPET AND RUG INSTITUTE'S GREEN LABEL PROGRAM.

4.504.3.2 CARPET ADHESIVE. ALL CARPET ADHESIVE SHALL MEET THE REQUIREMENTS OF TABLE 4.504.1.

4.504.4 RESILIENT FLOORING SYSTEMS. WHERE RESILIENT FLOORING IS I I INSTALLED, AT LEAST 80 PERCENT OF FLOOR AREA RECEIVING RESILIENT FLOORING SHALL COMPLY WITH ONE OR MORE OF THE FOLLOWING:
1. VOC EMISSION LIMITS DEFINED IN THE COLLABORATIVE FOR HIGH PERLORMANCE SCHOOLS (CHPS) HIGH PERLORMANCE PRODUCTS DATABASE.
2. PRODUCTS COMPLIANT WITH CHPS CRITERIA CERTIFIED UNDER THE GREENGUARD CHILDREN & SCHOOLS PROGRAM.
3. CERTIFICATION UNDER THE RESILIENT FLOOR COVERING INSTITUTE (RFCI) FLOORSCORE PROGRAM.
4. MEET THE CALIFOMIA DEPARTMENT OF PUBLIC HEALTH, "STANDARD METHOD FOR THE TESTING AND EVALUATION OF VOLATILE ORGANIC CHEMICAL EMISSIONS FROM INDOOR SOURCES U SING ENVIRONMENTAL CHAMBERS," VERSION 1.1, FEBRUARY 2010 (ALSO KNOWN AS SPECIFICATION 01350).

4.504.5 COMPOSITE WOOD PRODUCTS. HARDWOOD PLYWOOD, PARTICLEBOARD AND MEDIUM DENSITY FIBERBOARD COMPOSITE WOOD PRODUCTS USED ON THE INTERIOR OR EXTERIOR OF THE BUILDING SHAH MEET THE REQUIREMENTS FOR FORMALDEHYDE AS SPECIFIED IN ARB'S AIR TOXICS CONTROL MEASURE FOR COMPOSITE WOOD (17 CCR 93120 ET SEQ.), BY OR BEFORE THE DATES SPECIFIED IN THOSE SECTIONS, AS SHOWN IN TABLE 4.504.5.

4.504.5.1 DOCUMENTATION. VERIFICATION OF COMPLIANCE WITH THIS SECTION SHALL BE PROVIDED AS REQUESTED BY THE ENFORCING AGENCY. DOCUMENTATION SHALL INCLUDE AT LEAST ONE OF THE FOLLOWING:
1. PRODUCT CERTIFICATIONS AND SPECIFICATIONS.
2. CHAIN OF CUSTODY CERTIFICATIONS.
3. PRODUCT LABELED AND INVOICED AS MEETING THE COMPOSITE WOOD PRODUCTS REGULATION (SEE CCR, TITLE 17, SECTION 93120, ET SEQ.).
4. EXTERIOR GRADE PRODUCTS MARKED AS MEETING THE PS-1 OR PS-2 STANDARDS OF THE ENGINEERED WOOD ASSOCIATION, THE AUSTRALIAN ASINZS 2269 OR EUROPEAN 636 3S STANDARDS.
5. OTHER METHODS ACCEPTABLE TO THE ENFORCING AGENCY. SECTION 4.505 INTERIOR MOISTURE CONTROL 4.505.1 GENERAL. BUILDINGS SHALL MEET OR EXCEED THE PROVISIONS OF THE CALIFORNIA BUILDING STANDARDS CODE.

4.505.2 CONCRETE SLAB FOUNDATIONS. CONCRETE SLAB FOUNDATIONS REQUIRED TO HAVE A VAPOR RETARDER BY THE CALIFORNIA BUILDING CODE, CHAPTER 19 OR CONCRETE SLAB-ON-GROUND FLOORS REQUIRED TO HAVE A VAPOR RETARDER BY THE CALIFORNIA RESIDENTIAL CODE, CHAPTER 5, SHALL ALSO COMPLY WITH THIS SECTION. 4.505.2.1 CAPILLARY BREAK. A CAPILLARY BREAK SHALL BE INSTALLED IN COMPLIANCE WITH AT LEAST ONE OF THE FOLLOWING:
1. A 4-INCH-THICK (101.6 RNRN) BASE OF L/ZINCH (12.7 MM) OR LARGER CLEAN AGGREGATE SHALL BE PROVIDED WITH A VAPOR RETARDER IN DIRECT CONTACT WITH CONCRETE AND A CONCRETE MIX DESIGN, WHICH WILL ADDRESS BLEEDING, SHRINKAGE, AND CURLING, SHALL BE USED. FOR ADDITIONAL INFORMATION, SEE AMERICAN CONCRETE INSTITUTE, ACI 302.2R-06.
2. OTHER EQUIVALENT METHODS APPROVED BY THE ENFORCING AGENCY.
3. A SLAB DESIGN SPECIFIED BY A LICENSED DESIGN PROFESSIONAL. 4.505.3 MOISTURE CONTENT OF BUILDING MATERIALS. BUILDING MATERIALS WITH VISIBLE SIGNS OF WATER DAMAGE SHALL NOT BE INSTALLED. WALL AND FLOOR FRAMING SHALL NOT BE ENCLOSED WHEN THE FRAMING MEMBERS EXCEED 19-PERCENT MOISTURE CONTENT. MOISTURE CONTENT SHALL BE VERIFIED IN COMPLIANCE WITH THE FOLLOWING:
   1. MOISTURE CONTENT SHALL BE DETERMINED WITH EITHER A PROBE-TYPE OR CONTACT-TYPE MOISTURE METER. EQUIVALENT MOISTURE VERIFICATION METHODS MAY BE APPROVED BY THE ENFORCING AGENCY AND SHALL SATISFY REQUIREMENTS FOUND IN SECTION 101.8 OF THIS CODE.
   2. MOISTURE READINGS SHALL BE TAKEN AT A POINT 2 FEET (610 MM) TO 4 FEET (1219 MM) FROM THE GRADE STAMPED END OF EACH PIECE TO BE VERIFIED.
   3. AT LEAST THREE RANDOM MOISTURE READINGS SHALL BE PERFORMED ON WALL AND FLOOR FRAMING WITH DOCUMENTATION ACCEPTABLE TO THE ENFORCING AGENCY PROVIDED AT THE TIME OF APPROVAL TO ENCLOSE THE WALL AND FLOOR FRAMING. INSULATION PRODUCTS WHICH ARE VISIBLY WET OR HAVE A HIGH MOISTURE CONTENT SHALL BE REPLACED OR ALLOWED TO DRY PRIOR TO ENCLOSURE IN WALL OR FLOOR CAVITIES. WET -APPLIED INSULATION PRODUCTS SHALL FOLLOW THE MANUFACTURERS' DRYING RECOMMENDATIONS PRIOR TO ENCLOSURE.

SECTION 4.506 INDOOR AIR QUALITY AND EXHAUST:

4.506.1 BATHROOM EXHAUST FANS. EACH BATHROOM SHALL BE MECHANICALLY VENTILATED AND SHALL COMPLY WITH THE FOLLOWING:
1. FANS SHALL BE ENERGY STAR COMPLIANT AND BE DUCTED TO TERMINATE OUTSIDE THE BUILDING.
2. UNLESS FUNCTIONING AS A COMPONENT OF A WHOLE HOUSE VENTILATION SYSTEM, FANS MUST BE CONTROLLED BY A HUMIDITY CONTROL.
   A. HUMIDITY CONTROLS SHALL BE CAPABLE OF ADJUSTMENT BETWEEN A RELATIVE HUMIDITY RANGE OF:C:; 70 PERCENT TO A MAXIMUM OF 80 PERCENT. A HUMIDITY CONTROL MAY UTILIZE MANUAL OR AUTOMATIC MEANS OF ADJUSTMENT.
   B. A HUMIDITY CONTROL MAY BE A SEPARATE COMPONENT TO THE EXHAUST FAN AND IS NOT REQUIRED TO BE INTEGRAL (I.E., BUILT-IN).

NOTES:
1. FOR THE PURPOSES OF THIS SECTION, A BATHROOM IS A ROOM WHICH CONTAINS A BATHTUB, SHOWER, OR TUB/SHOWER COMBINATION.
2. LIGHTING INTEGRAL TO BATHROOM EXHAUST FANS SHALL COMPLY WITH THE CALIFORNIA ENERGY CODE.

SECTION 4.507 ENVIRONMENTAL COMFORT: I I 4.507.1 RESERVED

4.507.2 HEATING AND AIR-CONDITIONING SYSTEM DESIGN. HEATING AND AIR-CONDITIONING SYSTEMS SHALL BE SIZED, DESIGNED AND HAVE THEIR EQUIPMENT SELECTED USING THE FOLLOWING METHODS: 30
1. THE HEAT LOSS AND HEAT GAIN IS ESTABLISHED ACCORDING TO ANSI! ACCA 2 MANUAL J-2004 (RESIDENTIAL LOAD CALCULATION), ASHRAE HANDBOOKS OR OTHER EQUIVALENT DESIGN SOFTWARE OR METHODS.
2. DUCT SYSTEMS ARE SIZED ACCORDING TO ANSI! ACCA 1 MANUAL D-2009 (RESIDENTIAL DUCT SYSTEMS), ASHRAE HANDBOOKS OR OTHER EQUIVALENT DESIGN SOFTWARE OR METHODS.
3. SELECT HEATING AND COOLING EQUIPMENT ACCORDING TO ANSI! ACCA 3 MANUAL S-2004 (RESIDENTIAL EQUIPMENT SELECTION) OR OTHER EQUIVALENT DESIGN SOFTWARE OR METHODS.

EXCEPTION: USE OF ALTERNATE DESIGN TEMPERATURES NECESSARY TO ENSURE THE SYSTEMS FUNCTION ARE ACCEPTABLE.

RESIDENTIAL MANDATORY MEASURES

TABLE 4.504.1
ADHESIVE VOC LIMIT[1,2]
Less Water and Less Exempt Compounds in Grams per Liter

ARCHITECTURAL APPLICATIONS	CURRENT VOC LIMIT
Indoor carpet adhesives	50
Carpet pad adhesives	50
Outdoor carpet adhesives	150
Wood flooring adhesive	100
Rubber floor adhesives	60
Subfloor adhesives	50
Ceramic tile adhesives	65
VCT and asphalt tile adhesives	50
Drywall and panel adhesives	50
Cove base adhesives	50
Multipurpose construction adhesives	70
Structural glazing adhesives	100
Single-ply roof membrane adhesives	250
Other adhesives not specifically listed	50
SPECIALTY APPLICATIONS	
PVC welding	510
CPVC welding	490
ABS welding	325
Plastic cement welding	250
Adhesive primer for plastic	550
Contact adhesive	80
Special purpose contact adhesive	250
Structural wood member adhesive	140
Top and trim adhesive	250
SUBSTRATE SPECIFIC APPLICATIONS	
Metal to metal	30
Plastic foams	50
Porous material (except wood)	50
Wood	30
Fiberglass	80

1. If an adhesive is used to bond dissimilar substrates together, the adhesive with the highest VOC content shall be allowed.
2. For additional information regarding methods to measure the VOC content specified in this table, see South Coast Air Quality Management District Rule 1168.

TABLE 4.504.2
SEALANT VOC LIMIT
Less Water and Less Exempt Compounds in Grams per Liter

SEALANTS	CURRENT VOC LIMIT
Architectural	250
Marine deck	760
Nonmembrane roof	300
Roadway	250
Single-ply roof membrane	450
Other	420
SEALANT PRIMERS	
Architectural	
Nonporous	250
Porous	775
Modified bituminous	500
Marine deck	760
Other	750

TABLE 4.504.3
VOC CONTENT LIMITS FOR ARCHITECTURAL COATINGS[2,3]
Grams of VOC per Liter of Coating,
Less Water and Less Exempt Compounds

COATING CATEGORY	EFFECTIVE 1/1/2010	EFFECTIVE 1/1/2012
Flat coatings	50	
Nonflat coatings	100	
Nonflat-high gloss coatings	150	
SPECIALTY COATINGS		
Aluminum roof coatings	400	
Basement specialty coatings	400	
Bituminous roof coatings	50	
Bituminous roof primers	350	
Bond breakers	350	
Concrete curing compounds	350	
Concrete/masonry sealers	100	
Driveway sealers	50	
Dry fog coatings	150	
Faux finishing coatings	350	
Fire resistive coatings	350	
Floor coatings	100	
Form-release compounds	250	
Graphic arts coatings (sign paints)	500	
High temperature coatings	420	
Industrial maintenance coatings	250	
Low solids coatings[1]	120	
Magnesite cement coatings	450	
Mastic texture coatings	100	
Metallic pigmented coatings	500	
Multicolor coatings	250	
Pretreatment wash primers	420	
Primers, sealers, and undercoaters	100	
Reactive penetrating sealers	350	
Recycled coatings	250	
Roof coatings	50	
Rust preventative coatings	400	250
Shellacs		
Clear	730	
Opaque	550	
Specialty primers, sealers and undercoaters	350	100
Stains	250	
Stone consolidants	450	
Swimming pool coatings	340	
Traffic marking coatings	100	
Tub and tile refinish coatings	420	
Waterproofing membranes	250	
Wood coatings	275	
Wood preservatives	350	
Zinc-rich primers	340	

1. Grams of VOC per liter of coating, including water and including exempt compounds.
2. The specified limits remain in effect unless revised limits are listed in subsequent columns in the table.
3. Values in this table are derived from those specified by the California Air Resources Board, Architectural Coatings Suggested Control Measure, February 1, 2008. More information is available from the Air Resources Board.

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TABLE 4.504.5
FORMALDEHYDE LIMITS[1]
Maximum Formaldehyde Emissions in Parts per Million

PRODUCT	CURRENT LIMIT
Hardwood plywood veneer core	0.05
Hardwood plywood composite core	0.05
Particleboard	0.09
Medium density fiberboard	0.11
Thin medium density fiberboard[2]	0.13

HOME ENERGY RATING - ADDITIONS & REMODELS EXCEEDING $10,000:

IF PERMIT VALUATION FOR ADDITIONS AND REMODELS EXCEEDS $10,000.00 (TEN-THOUSAND DOLLARS, OWNER OR CONTRACTOR SHALL HIRE AN APPROVED HOME ENERGY RATING SYSTEM (***HERS***) RATER TO PERFORM A HOME ENERGY RATING PRIOR TO THE FINAL INSPECTION. COMPANIES THAT PERFORM ***"HERS"*** RATINGS CAN BE FOUND AT THE FOLLOWING WEBSITES:

https://www.calcerts.com/Rater_Directory_new.cfm and

http://www.cabec.org/professionHERSR.php

ALSO SINCE THE PERMIT VALUATION IS OVER $10,000, PER THE SAN LUIS OBISPO COUNTY GREEN BUILDING ORDINANCE, ANY EXISTING WATER FIXTURES THAT EXCEED THE THRESHOLDS IN THE WATER USE BASELINE TABLE SHOWN IN THE GREEN BUILDING ORDINANCE SHALL BE RETROFITTED, BRINGING THEM UP TO CAL GREEN MANDATORY REQUIREMENTS.

JB
DRAFTING & DESIGN
CAD DESIGN - AS BUILTS
RESIDENTIAL PLANS
610 10TH ST. SUITE "D"
PASO ROBLES, CA
93446
BUS.#(805)237-0850
FAX #(805)237-0480

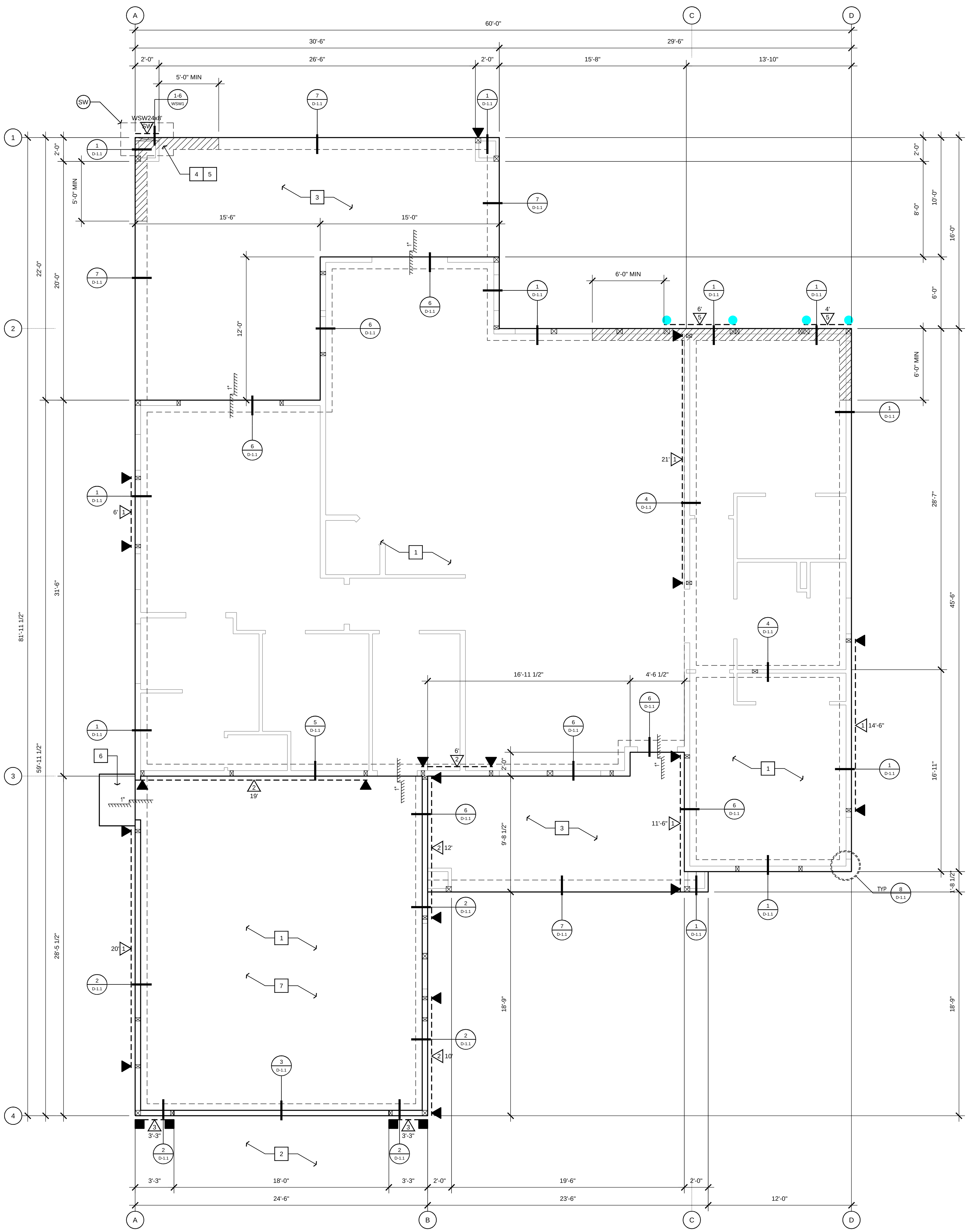
PLAN PREPARED FOR:
KIRK & CARRIE ALLEN
LOT 106 TRACT 1990-2
PASO ROBLES, CA 93446

REVISION LOG

REV.	DESCRIPTION	DATE

PROJECT NO. ----
FILE NAME GC-1 GREEN CODE SHEET.DWG
DRAWN BY JJK
DATE 3/31/2017 8:00 AM
SHEET TITLE:
GREEN CODE SHEET

SHEET NUMBER:
GC-1



FOUNDATION PLAN

1/4" = 1'

PAD FOOTING LEGEND

(SW) = WSW24 FOOTING SHALL BE 53" LONG X 33" WIDE X 18" DEEP CENTERED UNDER WSW WALL. PROVIDE TWO MATS OF REINFORCEMENT IN ANCHORAGE PAD FOOTING (ONE MAT AT TOP AND BOTTOM). DOUBLE MATS OF REINFORCEMENT SHALL BE AS FOLLOWS:
ALONG LENGTH OF FOOTING: (2)-ROWS OF (5)-#4 BARS
ALONG WIDTH OF FOOTING: (2)-ROWS OF (3)-#4 BARS

NOTES:

1. BARS SHALL BE A MINIMUM 3" CLEAR FROM BOTTOM AND SIDES OF FOOTING
2. PAD FOOTINGS SHALL BE INSTALLED CENTERED DIRECTLY BELOW BEARING POST PER PLAN.
3. **RUN PERIMETER REINFORCEMENT CONTINUOUS THROUGH PAD FOOTING WHERE APPLICABLE.**

FOUNDATION CALLOUTS

1. 4" CONCRETE SLAB -- SEE CONCRETE NOTE. GARAGE SLAB SHALL BE SLOPED TO FACILITATE THE MOVEMENT OF LIQUIDS TO A DRAIN OR TOWARDS THE MAIN VEHICLE ENTRY DOORWAY. (CRC R309.1)
2. PROVIDE 4" CONCRETE DRIVEWAY WITH #3 @ 18" O/C SET AT MIDSPAN OF SLAB OVER 4" CLEAN COMPACTED FILL SAND. PROVIDE 1/4" CONTROL JOINTS AS INDICATED AND AT 20'-0" O/C MAXIMUM. SLOPE CONCRETE AWAY FROM BUILDING 2% MINIMUM. THICKEN PERIMETER AND USE CONTINUOUS #4 BARS.
3. 4" CONCRETE SLAB AT COVERED PATIO -- SEE CONCRETE NOTE. SLOPE CONCRETE AWAY FROM BUILDING 2% MINIMUM.
4. WSW24 WALL FOOTING SHALL BE 53" LONG X 33" WIDE X 18" DEEP. SIMPSON HOLDOWN BOLT TO BE INSTALLED 11" MINIMUM INTO ENLARGED FOOTING. ANCHOR BOLTS SHALL CONSIST OF 1" Ø ASTM 1554 GRADE 36 THREADED ROD W/ DOUBLE NUT AND WASHER AT BOTTOM OF THREADED ROD (MODEL #: WSW-AB1x24). SEE DETAIL SHEET WSW1 FOR FOOTING POSITION UNDER WSW WALL AND ALL OTHER INSTALLATION REQUIREMENTS.
5. RUN PERIMETER REINFORCEMENT CONTINUOUS THROUGH WSW WALL FOOTING.
6. PROVIDE 4" CONCRETE PAD OUTSIDE EXTERIOR DOOR WITH #3 @ 18" O/C SET AT MIDSPAN OF SLAB OVER 4" CLEAN COMPACTED FILL SAND (THICKEN PERIMETER). SLOPE CONCRETE AWAY FROM BUILDING 2% MINIMUM. PAD SHALL BE MINIMUM 3'-0" DEEP AND AS WIDE AS DOORWAY PLUS 6 INCHES ON EACH SIDE.
7. PROVIDE 1" HIGH X 6" WIDE CONCRETE CURB AROUND GARAGE PERIMETER (TYP).

SPECIAL INSPECTION NOTES:

1. The engineer accepts no responsibility for special inspections during construction, or for the method or form of construction. Job site visits by the engineer do not constitute an official inspection.
2. Where "CONTINUOUS INSPECTION", "PERIODIC INSPECTION", or "SPECIAL INSPECTION" is required on the plans, the contractor, owner, or his agent shall employ an independent, approved* testing and inspection agency to provide a Deputy Inspector on site, Said Deputy Inspector shall understand that they as such, are acting as the agent of the engineer, architect, and governing jurisdictions. (* per CBC Section 1703)
3. Continuous Special Inspection, except where Periodic Special Inspection is allowed below, is required for the following:

   Concrete: reinforcing, placing of concrete, during taking of test specimens, etc., as specified by CBC Table 1704.4 (except not required for foundation concrete if f'c design strength is not more than 2500 psi, and for site work concrete fully supported on earth),

   Masonry: during preparation and taking of masonry test specimens, placing of all masonry units, placement of masonry reinforcement, inspection of grout space immediately prior to closing of cleanouts, during all grouting operations, etc., as specified by CBC Table 1704.5.1.

   Epoxy/adhesive anchors in concrete and masonry per current "ICC' report.

   Structural wood: periodic special inspection is required for nailing, bolting, anchoring and other fastening of components within the seismic-force-resisting system, including wood shear walls, wood diaphragms, drag struts, braces, shear panels and hold-downs,

   Exception: Not required where shear wall fastener spacing is more than 4 inches on center.

   High strength bolts: installation of high strength bolts shall be periodically inspected in accordance with current AISC specifications.

   Shop welding*: if not performed in an approved fabrication shop per CBC Section 1704.2.

   Field welding·: of load supporting steel members.

   * the special inspector need not be continuously present during welding of single-pass fillet welds not exceeding 5/16" size, provided the materials, qualifications of welding procedures, and welder certifications are verified prior to the start of work; periodic inspections are made of work in progress; and a visual inspection of all welds is made prior to completion or prior to shipment of shop welding.
4. Special inspection shall be provided/or the following specific phases of construction:

Item	Required?	Remarks
A. Soils compliance prior to foundation inspection.	YES	HALLIN GEOTECH.
B. Shear Wall Nailing < 4" O/C	YES	JK ENGINEERING
C. Structural masonry / Retaining walls	NO	
D. Epoxy / Adhesive anchors	NO	
E. Structural wood	NO	
F. High strength bolting	NO	
G. Field welding	NO	
H. Sprayed-on fireproofing Per Architect	NO	
I. Titen HD Screw Anchor Installation	NO	

REQUIRED TESTING:

Structural testing for seismic resistance shall be provide as noted below and per CBC Section 1708

1. Concrete cylinders for 28 day strength (2 cylinders average) for each class of concrete, not less than once a day, not less than once for each 150 cu. yds., and not less than once for each 5,000 sf. of slabs.
2. Concrete masonry units shall be tested prior to construction to verify compressive strength of 1900psi minimum.
3. Concrete masonry units shall be tested during construction for compressive strength to show compliance with 1900 psi minimum.
4. Masonry grout shall be tested for each 5,000 sf. of wall area, but not less than (I) test per project, to show compliance With minimum compressive strength of 2,000 psi per CBC Section 2105.2.2.1.2.
5. Non-destructive testing of all full penetration (complete joint penetration) welded connections,

SHEAR WALL SCHEDULE

	SHEAR (plf)	MATERIAL	2 SIDES	NAILING (E.N. F.N.)	TOP PLATE CONNECTOR [3,5,7,11]	SILL PLATE NAILS @ SUB-FLR [6]	5/8" Ø A.B. @ FND [4,8]
1	280	15/32" OSB (ID# 24/0)	N	8d @ 6 - 12	RBC @ 18" o/c or LPT4 @ 24" o/c	16d @ 6" o/c	48" o/c
2	430	15/32" OSB (ID# 24/0)	N	8d @ 4 - 12	RBC @ 12" o/c or LPT4 @ 16" o/c	16d @ 4.5" o/c	40" o/c
3	550	15/32" OSB (ID# 24/0)	N	8d @ 3 - 12	RBC @ 8" o/c or LPT4 @ 12" o/c	16d @ 3.5" o/c	32" o/c
4 [8]	665	15/32" OSB (ID# 24/0)	N	10d @ 3 - 12	RBC @ 8" o/c or LPT4 @ 10" o/c	16d @ 3.0" o/c	26" o/c
5 [8]	870	15/32" OSB (ID# 24/0)	N	10d @ 2 - 12	RBC @ 6" o/c or LPT4 @ 8" o/c	SDWS0.22x6" SCREWS @ 6" O/C	20" o/c
6 [8,9,10]	1330	15/32" OSB (ID# 24/0)	Y	10d @ 3 - 12	LTP4 @ 5" o/c	(2)-Rows SDWS0.22x6" SCREWS @ 6" O/C	12" o/c
7 [8,9,10]	1740	15/32" OSB (ID# 24/0)	Y	10d @ 2 - 12	LTP4 @ 4" o/c	(2)-Rows SDWS0.22x6" SCREWS @ 6" O/C	10" o/c

FOOTNOTES:

1. All sheathing to be Struct I panel grade and fully blocked.
2. Refer to "Vertical Diaphragm Notes" for material and application specifications.
3. All nails specified are common. Where "air-gun" nailing is used, care shall be taken to use true common nail equivalents.
4. Provide 0.229" thick x 3" square, flat plate washers at all 5/8" diameter anchor bolts. Plate washer is required to be within 1/2" of plywood sheathing.
5. For walls which bear trusses; one H-1 clip, from truss to top plate, may be used in place of one A35 top plate connector.
6. Use RBC @ 3x sill plate to rim joist or solid blocking with spacing per "Top Plate Connector".
7. Ok to use (1) A35 clip in lieu of (1) RBC as needed.
8. Studs shall be 3x minimum @ panel edges. Use 3x P.T.D.F. bottom plate for Shear Panel 6 & 7. Use 2x P.T.D.F. bottom plate for Shear Panels 1-5. Stagger nails @ double top plate and panel edges.
9. Stagger nails at opposite sides of wall.
10. Provide a double rim joist and stagger SDWS screws by 3".
11. Install LTP4 with 8d common nails only.

HOLDOWN KEY

(red triangle) = HDU2 W/ SB5/8x24. USE 4X6 D.F. #2 POST W/ HOLDOWN. SEE DETAIL (9/D-1.1)

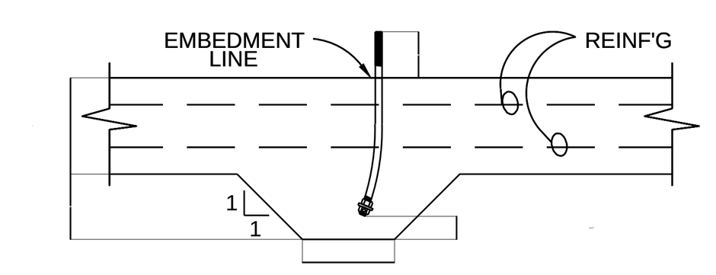
(yellow square) = HDU4 W/ SB5/8x24. USE 4X6 D.F. #2 POST W/ HOLDOWN. SEE DETAIL (9/D-1.1)

(cyan circle) = HDU8 W/ SB7/8x24. USE 6X6 D.F. #1 POST W/ HOLDOWN. SEE DETAIL (9/D-1.1)

HOLDOWN NOTES:

1. HOLDOWN ANCHORS MUST BE TIED IN PLACE PRIOR TO FOUNDATION INSPECTION AND RE-TIGHTENED JUST PRIOR TO COVERING THE WALL FRAMING.
2. HDU HOLDOWNS MAY BE INSTALLED 18" MAXIMUM ABOVE TOP OF CONCRETE.

SB HOLDOWN ANCHOR DETAIL



INCREASED FOOTING DEPTH AT SSTB HOLDOWN ANCHOR (WHERE APPLICABLE)

SOIL NOTE

SOILS EXPANSION INDEX: VERY LOW
ORIGINAL REPORT: SL02830-3
BY: GEOSOLUTIONS, INC.
DATED: OCTOBER 9, 2002

SOILS UPDATE LETTER: H-
BY: HALLIN GEOTECHNICAL SERVICES, LLC.
DATED:

THE SOILS REPORT REFERENCED IS PART OF THESE PLANS AND ALL RECOMMENDATIONS THERE IN SHALL BE COMPLIED WITH.

CONCRETE NOTE

CONCRETE SLAB SHALL BE 4" THICK MINIMUM WITH #3 BARS @ 18" O/C. EACH WAY OVER 2" CLEAN COMPACTED FREE DRAINING SAND OVER 10MIL VISQUEEN. VISQUEEN TO BE PLACED OVER 6" CLEAN FREE DRAINING MATERIAL. SET REINFORCEMENT AT MID DEPTH OF SLAB.
FOOTINGS SHALL BE 12 INCHES WIDE X 18 INCHES DEEP WITH (1)-#4 BAR TOP AND BOTTOM UNLESS OTHERWISE NOTED ON FOUNDATION PLAN. ALWAYS CHECK FOUNDATION LEGEND FOR DIFFERENCES IN REBAR SIZES AND LOCATIONS. NOTE THAT DEPTH OF FOOTING SHALL BEGIN AT COMPETENT MATERIAL, WHICH MAY OR MAY NOT BE THE SAME AS FINISHED GRADE. USE #3 REINFORCEMENT BARS SET 3" MINIMUM ABOVE THE BOTTOM OF THE FOOTING AND BENT 3'-0" MINIMUM INTO SLAB.

LIGHTLY MOISTEN GROUND PRIOR TO PLACING CONCRETE.

CONCRETE SLABS SHALL BE SAW CUT 3/4" DEEP @ 15' O/C. GRIDS WITHIN 24 HOURS OF SLAB POUR.

SOILS ENGINEER SHALL VERIFY ALL FOOTINGS AND SLAB AREAS PRIOR TO CONTRACTOR PLACING FORMS AND STEEL REINFORCEMENT.

FOUNDATION NOTES:

1. STRENGTH OF CONCRETE AT 28 DAYS SHALL BE 2500 PSI MINIMUM.
2. ALL HOLDOWNS AND BRACKETS IN CONCRETE SHALL BE SET IN PLACE PRIOR TO FOUNDATION INSPECTION.
3. A COPY OF THE SOILS REPORT SHALL BE ON SITE DURING FOUNDATION INSPECTION.
4. VERIFY ALL HOLDOWNS AND ANCHOR BOLTS LOCATIONS WITH FLOOR PLAN.
5. THE SOILS ENGINEER SHALL INSPECT AND APPROVE THE FOUNDATION EXCAVATIONS BEFORE REQUESTING A BUILDING DIVISION FOUNDATION INSPECTION.
6. PRIOR TO CALLING FOR BUILDING DIVISION FOUNDATION INSPECTION, PRELIMINARY GRADING AND COMPACTION REPORTS SHALL BE SUBMITTED TO AND APPROVED BY THE BUILDING DIVISION GRADING INSPECTOR.
7. THE FASTENERS EMBEDDED IN CONCRETE SHALL BE ATTACHED TO, OR HOOKED AROUND, REINFORCING STEEL OR OTHERWISE TERMINATED TO EFFECTIVELY TRANSFER FORCES TO THE REINFORCING STEEL. (SEC 1633.2.4.2 #6)
8. HOLD DOWN DEVICES MUST BE SECURED IN PLACE PRIOR TO FOUNDATION INSPECTION.
9. SLABS SHALL BE SAW CUT 3/4" DEEP @ 15" O.C. GRIDS WITHIN 24 HOURS OF SLAB POUR.
10. PROVIDE FINAL SOILS REPORT PRIOR TO FOUNDATION INSPECTION. THIS REPORT SHALLCERTIFY THAT THE SOIL PREPARED IS TO THE PRELIMINARY SOIL REPORT AND THE SOIL CONDITION IS SUITABLE FOR THE PROPOSED STRUCTURE. THIS REPORT SHALL BE SIGNED AND WET STAMPED BY THE SOIL ENGINEER.
11. SOIL ENGINEER SHALL INSPECT ALL FOUNDATION EXCAVATIONS PRIOR TO CONCRETE POURING AND OBSERVE ALL REQUIRED MOISTURE CONDITIONS OF UNDER-SLAB AREAS.
12. PRIOR TO POURING FOUNDATION, A LICENSED PROFESSIONAL SHALL PERFORM A FOUNDATION PAD INSPECTION. A LETTER IS TO BE SENT TO THE PLAN CHECK DIVISION AND CERTIFY THAT THE CONSTRUCTION OF THE PAD IS TO THE SITE PLAN AND TO THE ARCHITECTURAL PLAN; AND NO DEVIATION FROM THE APPROVED PLANS.

CONTRACTOR WSW WALL NOTE

THE CONTRACTOR SHALL NOTE THAT SIMPSON MAKES DIFFERENT TEMPLATE PLATES FOR EACH OF THEIR PRE-ENGINEERED SHEAR BRACE WALLS. USE CARE WHEN ORDERING ANCHORAGE / TEMPLATE KIT TO ORDER CORRECT KIT FOR WSW WALL DENOTED ON PLANS.

FOUNDATION VERIFICATION LETTER REQ'D

PRIOR TO THE CONTRACTOR REQUESTING A BUILDING DEPARTMENT FOUNDATION INSPECTION, THE SOILS ENGINEER SHALL ADVISE THE BUILDING OFFICIAL IN WRITING THAT:

1. THE BUILDING PAD WAS PREPARED IN ACCORDANCE WITH THE SOILS REPORT.
2. THE UTILITY TRENCHES HAVE BEEN PROPERLY BACKFILLED AND COMPACTED.
3. THE FOUNDATION EXCAVATIONS COMPLY WITH THE INTENT OF THE SOILS REPORT.

ANCHOR BOLT NOTE

2 X SILL PLATE ----------> USE 5/8" DIAMETER X 10" MIN. ANCHOR BOLTS
3 X SILL PLATE ----------> USE 5/8" DIAMETER X 12" MIN. ANCHOR BOLTS

ASTM F1554 GR. 36 ANCHOR BOLTS SHALL BE EMBEDDED 7" MINIMUM INTO PERIMETER FOOTING AND SPACED AT 4 FEET MAX. ON CENTER UNLESS NOTED OTHERWISE ON SHEAR WALL SCHEDULE. BOLTS SHALL BE A MAXIMUM OF 12" FROM SILL ENDS AND SPLICES WITH A MINIMUM OF 2 BOLTS PER SPLICE. USE 3" X 3" X 0.229" THICK FLAT PLATE WASHERS AT EACH ANCHOR BOLT. **WASHERS MUST BE WITHIN 1/2" OF STRUCTURAL SHEATHING.**

FOUNDATION PLAN LEGEND

(hatched) = 12" WIDE X 18" DEEP CONTINUOUS FOOTING WITH: (2)-#4 BARS TOP AND BOTTOM

ENGINEERING
239-4151
John A. Kudla
Civil Engineering & Structural Design
R.C.E. #50652
610 10th ST. UNIT 'A' PASO ROBLES, CA.

PLAN PREPARED FOR:
KIRK & CARRIE ALLEN
LOT 106 TRACT 1990-2
PASO ROBLES, CA 93446

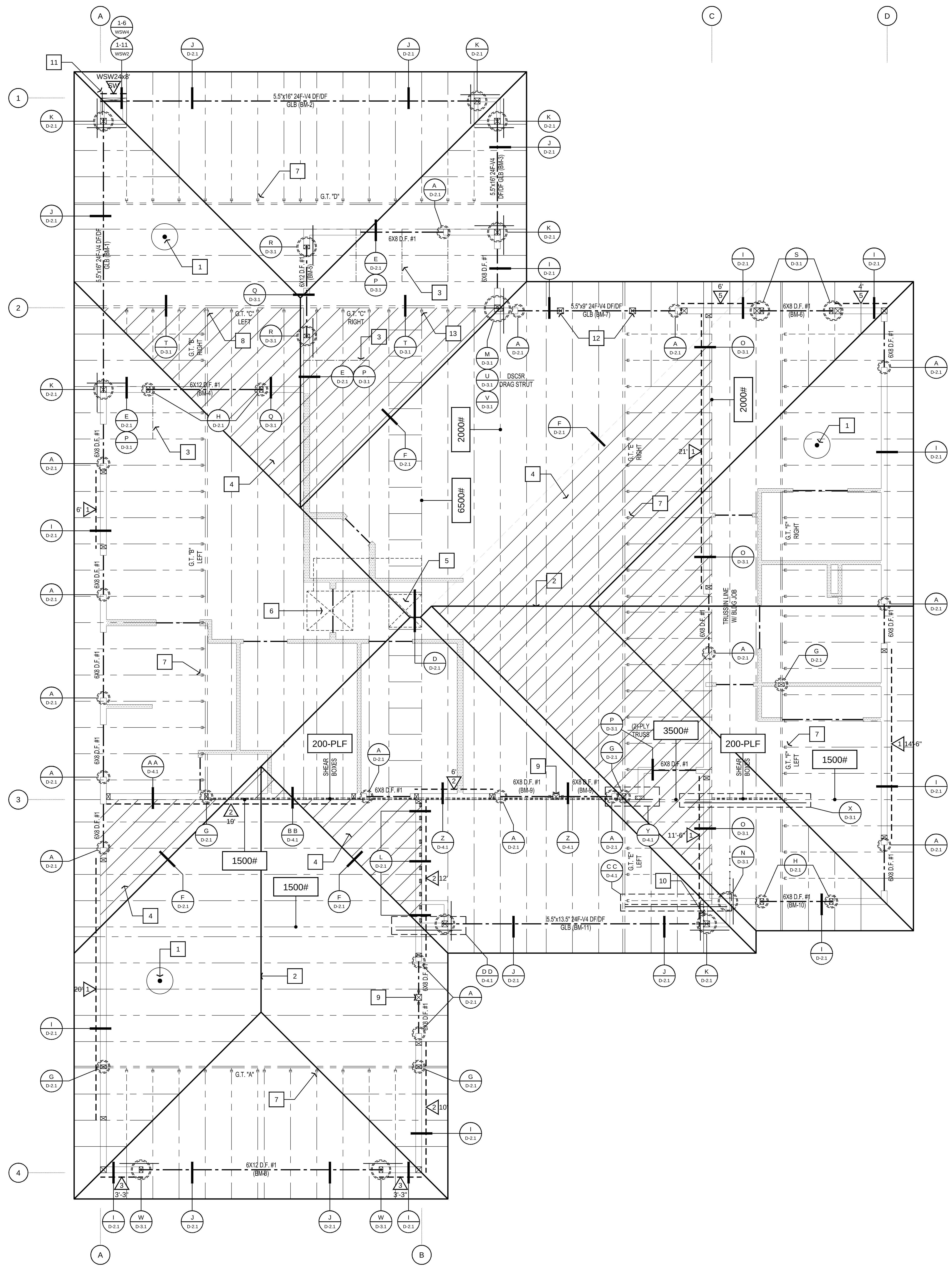
REVISION LOG

REV.	DESCRIPTION	DATE

PROJECT NO. ----
FILE NAME S-1.1 FOUNDATION PLAN.DWG
DRAWN BY JJK
DATE 3/31/2017 8:00 AM

SHEET TITLE:
FOUNDATION PLAN

SHEET NUMBER:
S-1.1



ROOF FRAMING PLAN

1/4" = 1'

ROOF FRAMING PLAN LEGEND

(solid double line)	=	EXTERIOR WALLS: (PLATE HEIGHT = 9'-0")	2X6 D.F. #2 STUDS @ 16" O/C
(dotted double line)	=	INTERIOR NON-BEARING WALLS: PLUMBING WALLS: (PLATE HEIGHT = 9'-0")	2X4 D.F. #2 STUDS @ 16" O/C 2X6 D.F. #2 STUDS @ 16" O/C SEE DETAILS (C/D-2.1)
(hatched box)	=	CALIFORNIA FRAMING:	SEE DETAIL (F/D-2.1)

AXIAL LOADED TRUSSES

??????#

ALL AXIAL LOADED TRUSSES TO BE IN LINE WITH SHEAR PANELS AS SHOWN ON FRAMING PLAN AND ROOF PLY TO BE NAILED WITH 8d NAILS @ 6 O.C. ALONG ENTIRE LENGTH OF TRUSS.

AT ALL AXIAL LOADED G.T.'S OR (2) PLY AXIAL LOADED TRUSSES **PROVIDE 8d @ 6" O/C FROM ROOF SHEATHING INTO BOTH TOP CHORD MEMBERS OF TRUSS**. STAGGER NAILS ON BOTH TOP CHORD MEMBERS AND NAIL FOR ENTIRE LENGTH OF TRUSS. (THEREFORE THERE SHOULD BE TWO ROWS OF 8d @ 6" O/C ALONG MULTI PLY TRUSS)

PROJECT DESIGN CRITERIA

GOVERNING BUILDING CODE
2016 CALIFORNIA RESIDENTIAL CODE
2016 CALIFORNIA BUILDING CODE

GENERAL PARAMETERS

CONSTRUCTION TYPE	TYPE V-B		
NUMBER OF STORIES	1		
MAX HEIGHT (ABV. GRADE)	17'-9"		
ROOF - (LIVING)	DL / LR	25 / 20	PSF
ROOF - (PORCH)	DL / LR	30 / 20	PSF
WALLS - EXTERIOR	DL	18	PSF
WALLS - INTERIOR	DL	8	PSF

GEOTECHNICAL PARAMETERS

BEARING PRESSURE	2000	PSF
LATERAL PASSIVE PRESSURE	400	PCF
EFP (REST / ACTIVE)	50 / 35	PCF
FRICTION COEFFICIENT	0.50	

WIND DESIGN PARAMETERS

DESIGN PROCEDURE	SIMPLIFIED
BASIC WIND SPEED	110 MPH
EXPOSURE	B
RISK CATEGORY	II
INTERNAL PRESSURE COEFF.	N/A
DESIGN LATERAL WIND PRESSURE	15.96 PSF (ZONE - A)
DESIGN VERTICAL WIND PRESSURE	13.86 PSF (ZONE - E)

SEISMIC DESIGN PARAMETERS

DESIGN PROCEDURE	EQUIV. FORCE	
SITE CLASS	D	
IMPORTANCE FACTOR	1.00	
OCCUPANCY CATEGORY	II	
MAPPED SPECTRAL RESPONSE	SS = 1.317	S1 = 0.4753
SPECTRAL RESPONSE COEFFICIENT	SDS = 0.878	SD1 = 0.483
SEISMIC DESIGN CATEGORY	SDC = D	
SEISMIC FORCE RESISTING SYSTEM	WOOD STRUCTURAL RATED PANEL	
RESPONSE MODIFICATION FACTOR	R = 6.5	
DESIGN BASE SHEAR	0.13W	
ANALYSIS PROCEDURE USED	ASD	

SHEAR WALL SCHEDULE

	SHEAR (plf)	MATERIAL	2 SIDES	NAILING (E.N. F.N.)	TOP PLATE CONNECTOR [3,5,7,11]	SILL PLATE NAILS [6] @ SUB-FLR	⅝" Ø A.B. [4,8] @ FND
1	280	15/32" OSB (ID# 24/0)	N	8d @ 6 - 12	RBC @ 18" o/c or LPT4 @ 24" o/c	16d @ 6" o/c	48" o/c
2	430	15/32" OSB (ID# 24/0)	N	8d @ 4 - 12	RBC @ 12" o/c or LPT4 @ 16" o/c	16d @ 4.5" o/c	40" o/c
3	550	15/32" OSB (ID# 24/0)	N	8d @ 3 - 12	RBC @ 8" o/c or LPT4 @ 12" o/c	16d @ 3.5" o/c	32" o/c
4 [8]	665	15/32" OSB (ID# 24/0)	N	10d @ 3 - 12	RBC @ 8" o/c or LPT4 @ 10" o/c	16d @ 3.0" o/c	26" o/c
5 [8]	870	15/32" OSB (ID# 24/0)	N	10d @ 2 - 12	RBC @ 6" o/c or LPT4 @ 8" o/c	SDWS0.22x6" SCREWS @ 6" O/C	20" o/c
6 [8,9,10]	1330	15/32" OSB (ID# 24/0)	Y	10d @ 3 - 12	LTP4 @ 5" o/c	(2)-Rows SDWS0.22x6" SCREWS @ 6" O/C	12" o/c
7 [8,9,10]	1740	15/32" OSB (ID# 24/0)	Y	10d @ 2 - 12	LTP4 @ 4" o/c	(2)-Rows SDWS0.22x6" SCREWS @ 6" O/C	10" o/c

FOOTNOTES:

1 All sheathing to be Struct I panel grade and fully blocked.
2 Refer to "Vertical Diaphragm Notes" for material and application specifications.
3 All nails specified are common. Where "air-gun" nailing is used, care shall be taken to use true common nail equivalents.
4 Provide 0.229" thick x 3" square, flat plate washers at all 5/8" diameter anchor bolts. Plate washer is required to be within 1/2" of plywood sheathing.
5 For walls which bear trusses; one H-1 clip, from truss to top plate, may be used in place of one A35 top plate connector.
6 Use RBC @ 3x sill plate to rim joist or solid blocking with spacing per "Top Plate Connector".
7 Ok to use (1) A35 clip in lieu of (1) RBC as needed.
8 Studs shall be 3x minimum @ panel edges. Use 3x P.T.D.F. bottom plate for Shear Panel 6 & 7. Use 2x P.T.D.F. bottom plate for Shear Panels 1-5. Stagger nails @ double top plate and panel edges.
9 Stagger nails at opposite sides of wall.
10 Provide a double rim joist and stagger SDWS screws by 3".
11 Install LTP4 with 8d common nails only.

ROOF FRAMING PLAN CALLOUTS

1. PROVIDE 5/8" APA RATED EXPOSURE-1 OSB RADIANT BARRIER ROOF SHEATHING (SPAN INDEX 40/20) WITH 8d @ 6" - 6" - 12". CASE 1 LAYOUT.
2. SOLID BLOCK AT RIDGE. (TYP)
3. 2X4 D.F. #2 OUT-OF-PLANE WALL BRACING @ 48" O/C. SEE DETAIL (E/D-2.1)
4. CALIFORNIA FRAMING. CONTINUE ROOF SHEATHING UNDER CALIFORNIA FRAMING AND SOLID BLOCK AT HIPS AND VALLEYS. PROVIDE 22" X 30" OPENING FOR ATTIC ACCESS AND ATTIC VENTILATION IN ROOF SHEATHING UNDER CALIFORNIA FRAMING. BLOCK OUT OPENING AND EDGE NAIL SHEATHING. SEE DETAIL (F/D-2.1)
5. SPACE TRUSSES FOR 30" BY 30" ATTIC ACCESS OPENING. USE FLAT 2 X 4 AT 24" O/C AT TOP AND BOTTOM CHORD OF TRUSSES. AN 22" X 30" ACCESS OPENING CAN BE USED IF A LETTER FROM THE MANUFACTURER STATING THAT ALL COMPONENTS OF FAU UNIT CAN FIT THROUGH AN OPENING OF THAT SIZE. USE 2 X RAFTER TAILS TO MATCH TRUSS SIZE AND SPACING. THE FURNACE SHALL BE LOCATED NOT GREATER THAN 20 FEET FROM THE ATTIC ACCESS. A MINIMUM 30" X 30" UNOBSTRUCTED LEVEL WORKING SPACE SHALL BE PROVIDED IN FRONT OF THE FAU. A CONTINUOUS SOLID WALKWAY AT LEAST 24 INCHES WIDE FROM ACCESS TO UNIT. A PERMANENT ELECTRIC OUTLET AND A LIGHTING FIXTURE CONTROLLED BY A SWITCH LOCATED AT THE ATTIC ACCESS SHOULD BE PROVIDED AT OR NEAR THE FURNACE. SEE DETAIL (D/D-2.1)
6. PLATFORM FOR FAU. INSULATION SHALL BE IN PLACE BENEATH PLATFORM. FURNACE / AC SHALL BE PER TITLE-24 REPORT OR AN APPROVED EQUAL. FURNACE IS CERTIFIED TO BE INSTALLED IN ATTIC. PROVIDE MANUFACTURER'S INSTALLATION GUIDE FOR FIELD INSPECTION.
7. LUS24 HANGER AT JACK TRUSS TO G.T. CONNECTION. (TYP FOR 8'-0" SPAN JACK TRUSSES)
8. HHUS26-2 HANGER AT G.T. TO G.T. CONNECTION.
9. 6X6 D.F. #1 POST SHALL BE CONTINUOUS FROM SILL PLATE TO TOP PLATE. PROVIDE HGA10 AT POST TO SILL / TOP PLATE CONNECTION. HANG HEADERS TO POST W/ HUC68 HANGER USE SIMPSON SD#10x1.5" SCREWS.
10. PROVIDE ROOF SHEATHING EDGE NAILING (8d @ 6" O/C) ALONG LENGTH OF JACK TRUSS IN LINE W/ SHEAR WALL. ALSO PROVIDE A35 AT JACK TRUSS TO TOP PLATE CONNECTION.
11. CS16 STRAP 12" ON TOP OF TOP PLATE. EXTEND STRAP OUT AND BEND DOWN FACE OF BEAM 6" AT WSW WALL.
12. 6X6 D.F. #1 POST W/ PC6Z AT POST TO BEAM CONNECTION. PROVIDE HGA10 AT POST TO SILL PLATE CONNECTION.
13. HUS26 HANGER AT TRUSS TO G.T. CONNECTION. SEE DETAIL (T/D-3.1)

ROOF FRAMING NOTES:

1. USE H-1 CLIPS AT EACH TRUSS / RAFTER TO TOP PLATE / BEAM CONNECTIONS.
2. USE H10A-2 CLIPS AT ALL (2)-PLY / G.T. / DBL RAFTER TO TOP PLATE / BEAM CONNECTIONS.
3. PROVIDE EAVE BLOCKS BETWEEN EACH TRUSS W/ 8d AT 6" O.C. AND PROVIDE VENT BLOCKS AT EVERY THIRD TRUSS IF APPLIES.
4. PROVIDE 5/8" APA RATED EXPOSURE-1 OSB RADIANT BARRIER ROOF SHEATHING (SPAN INDEX 40/20) WITH 8d @ 6" - 6" - 12". CASE 1 LAYOUT.
5. USE ⅝" "LP FLAMEBLOCK" SHEATHING AT EAVES W/ 6-6-12 NAILING AND CASE 1 LAYOUT. USE EXTERIOR GLUE AT ALL EXPOSED EAVES.
6. ROOF UNDER LAYMENT SHALL COMPLY WITH CBC 1507 AND APPLICABLE TABLES. USE 30# FELT UNDERNEATH ALL ROOF MATERIALS.
7. FASCIA TO BE 2X8 HEM FIR.

FRAMING NOTES:

1. ALL HEADERS ABOVE OPENINGS SHALL BE A MINIMUM:
   6X8 D.F. #1 AT 2X6 D.F. #2 STUD WALLS (U.O.N.)
   ALL INTERIOR NON-BEARING HEADERS SHALL BE 4X8 D.F. #2 OR 6X8 D.F. #1.
   WINDOW / DOOR OPENING NOTE: ALL WINDOW / DOOR OPENINGS SHALL BE CONNECTED PER DETAIL (A/D-2.1) U.O.N.
2. ALL TOP PLATES TO HAVE 48" MIN. LAP AT SPLICES WITH **(18)-16d NAILS** STAGGERED PER LAP CONNECTION. NAILS SHALL BE INSTALLED VERTICALLY (PERPENDICULAR TO TOP PLATE). **(DO NOT INSTALL NAILS AT ANGLE)**
3. **LINES-2 & 3 TOP PLATE SPLICE CONNECTION:** ALL TO PLATE TO HAVE 48" MIN. LAP AT SPLICES WITH **(28)-16d NAILS** STAGGERED PER LAP CONNECTION.
3. ALL LUMBER SHALL BE IDENTIFIED WITH THE GRADE MARK AND STAMP OF THE GRADING ASSOCIATION COVERING THE SPECIES AND UNDER WHOSE GRADING RULES THE LUMBER WAS PRODUCED.
4. THE MANUFACTURERS A.I.T.C. CERTIFICATION OF COMPLIANCE FOR GLU-LAM BEAMS OR MICRO-LAM BEAMS IS TO BE PROVIDED AT THE TIME OF FRAMING INSPECTION AND PROPERLY INDICATE THE FIBER BENDING AND GRADE SPECIFICATION.
5. PLACE SHEAR PANEL ON SHEAR WALLS PRIOR TO THE CONSTRUCTION OF INTERSECTING WALLS.
6. PROVIDE FIRE STOPS IN CONCEALED SPACES OF STUD WALLS INCLUDING SPACES AT CEILING AND FLOORS & IN OPENINGS AROUND DUCTS, PIPES, CHIMNEYS, AND SIMILAR OPENINGS WHICH ALLOW PASSAGE OF FIRE.
7. SHOWER COMPARTMENT AND WALLS ABOVE BATHTUBS WITH INSTALLED SHOWER HEADS SHALL BE FINISHED WITH A NONABSORBENT SURFACE TO A HEIGHT NOT LESS THAN 72" ABOVE THE FLOOR PER CRC R307.2. FIBER-CEMENT, FIBER-MAT REINFORCED CONCRETE, GLASS MAT GYPSUM BACKERS, OR FIBER-REINFORCED GYPSUM BACKERS SHALL BE USED AS A BASE FOR CERAMIC WALL TILES IN TUB AND SHOWER AREAS AS WELL AS WALL PANELS IN SHOWER AREAS PER CRC R702.4.2.
8. ALL COIL STRAPS ARE TO BE EVENLY DISTRIBUTED ONTO BOTH MEMBERS BEING CONNECTED. (U.O.N.)

ENGINEERED ROOF TRUSS NOTES:

1. THE TRUSSES SHALL NOT BE INSTALLED UNTIL AN **APPROVED JOB COPY** OF THE TRUSS SUBMITTALS IS ISSUED BY THE APPROPRIATE CITY / COUNTY BUILDING DIVISION.
2. ALL TRUSS ENGINEERING, DRAWINGS, TRUSS TYPES, AND DETAILED SHOP DRAWINGS SHALL BE APPROVED BY THE PROJECT ENGINEER OR ARCHITECT PRIOR TO THE INSTALLATION OF THE TRUSSES.
3. TRUSS MEMBERS AND COMPONENTS SHALL **NOT** BE CUT, NOTCHED, DRILLED, OR OTHERWISE ALTERED IN ANY WAY WITHOUT WRITTEN CONCURRENCE AND APPROVAL OF A REGISTERED DESIGN PROFESSIONAL.
4. ALTERATIONS RESULTING IN THE ADDITION OF LOADS TO ANY MEMBER (E.G. HVAC EQUIPMENT, WATER HEATER) SHALL NOT BE PERMITTED WITHOUT VERIFICATION THAT THE TRUSS IS CAPABLE OF SUPPORTING SUCH ADDITIONAL LOADING.
5. TRUSS MANUFACTURER SHALL PROVIDE A TRUSS PLACEMENT DIAGRAM THAT IDENTIFIES THE PROPOSED LOCATION FOR EACH INDIVIDUALLY DESIGNATED TRUSS AND REFERENCE THE CORRESPONDING TRUSS DESIGN DRAWINGS (TO BE INCLUDED IN THE SUBMITTAL PACKAGE AND WITH THE SHIPMENT OF TRUSSES.)
6. ALL TRUSS DIMENSIONS SHALL BE VERIFIED IN FIELD PRIOR TO ORDERING AND MANUFACTURING OF TRUSSES. **EITHER THE CONTRACTOR OR TRUSS COMPANY IS RESPONSIBLE** TO GO TO THE FIELD AND MEASURING THE ACTUAL FRAMING DIMENSIONS PRIOR TO ORDERING TRUSSES.
7. TRUSS FABRICATOR SHALL BE APPROVED IN ACCORDANCE WITH CBC SECTION 1704.2. TRUSS FABRICATOR SHALL PROVIDE DOCUMENTATION TO JUSTIFY DURING SUBMITTAL; INCLUDING NAME AND PHONE NUMBER OF THE AGENCY INSPECTING THE SHOP OPERATIONS.
8. TRUSS MANUFACTURER SHALL PROVIDE REQUIRED TYPICAL OR INDUSTRY STANDARD NOTES AND DETAILS IN THE TRUSS PACKAGE REGARDING REQUIREMENTS FOR BRACING AND INSTALLATION OF TRUSSES.
9. TRUSS TO TRUSS CONNECTIONS SHALL BE SPECIFIED ON THE TRUSS DESIGN DRAWINGS.
10. EACH TRUSS SHALL BE LEGIBLY BRANDED, MARKED, OR OTHERWISE PERMANENTLY AFFIXED THERE TO THE FOLLOWING INFORMATION WITHIN TWO FEET OF THE CENTER OF THE BOTTOM CHORD: **IDENTITY OF THE COMPANY MANUFACTURING THE TRUSS, THE DESIGN LOAD (AXIAL LOAD), AND THE SPACING OF TRUSSES**.
11. PLANS, DETAILS, AND CALCULATIONS SHALL BE REVIEWED BY THE JOB ARCHITECT / ENGINEER PRIOR TO SUBMITTAL TO THE CITY / COUNTY FOR APPROVAL.
12. ALL TRUSS CALCULATIONS AND DETAILS ARE TO BE PREPARED AND SIGNED BY A REGISTERED ARCHITECT / ENGINEER.

JK ENGINEERING
239-4151
John A. Kudla
Civil Engineering & Structural Design
R.C.E. #50652
610 10th ST. UNIT 'A' PASO ROBLES, CA.

PLAN PREPARED FOR:
KIRK & CARRIE ALLEN
LOT 106 TRACT 1990-2
PASO ROBLES, CA 93446

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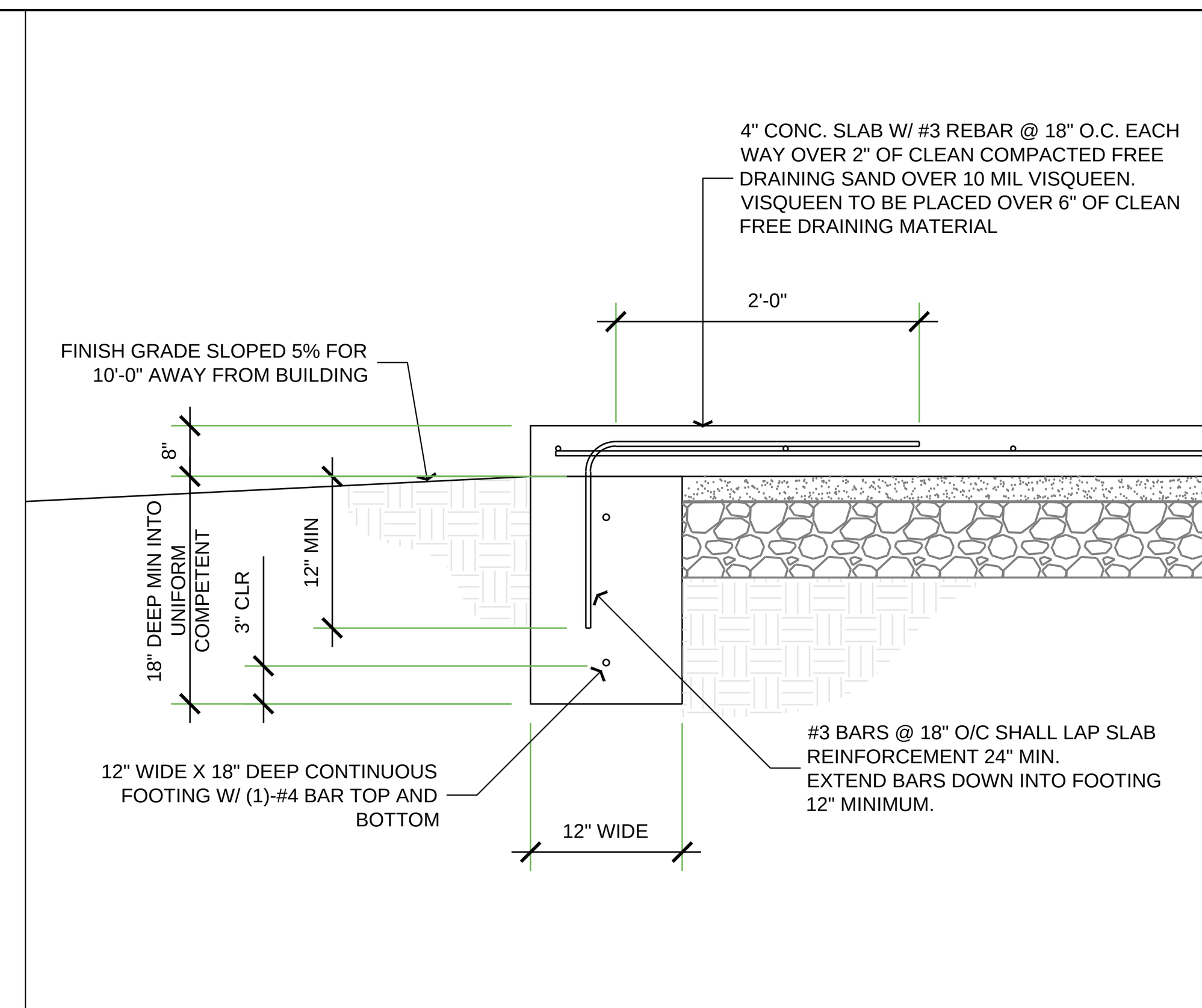
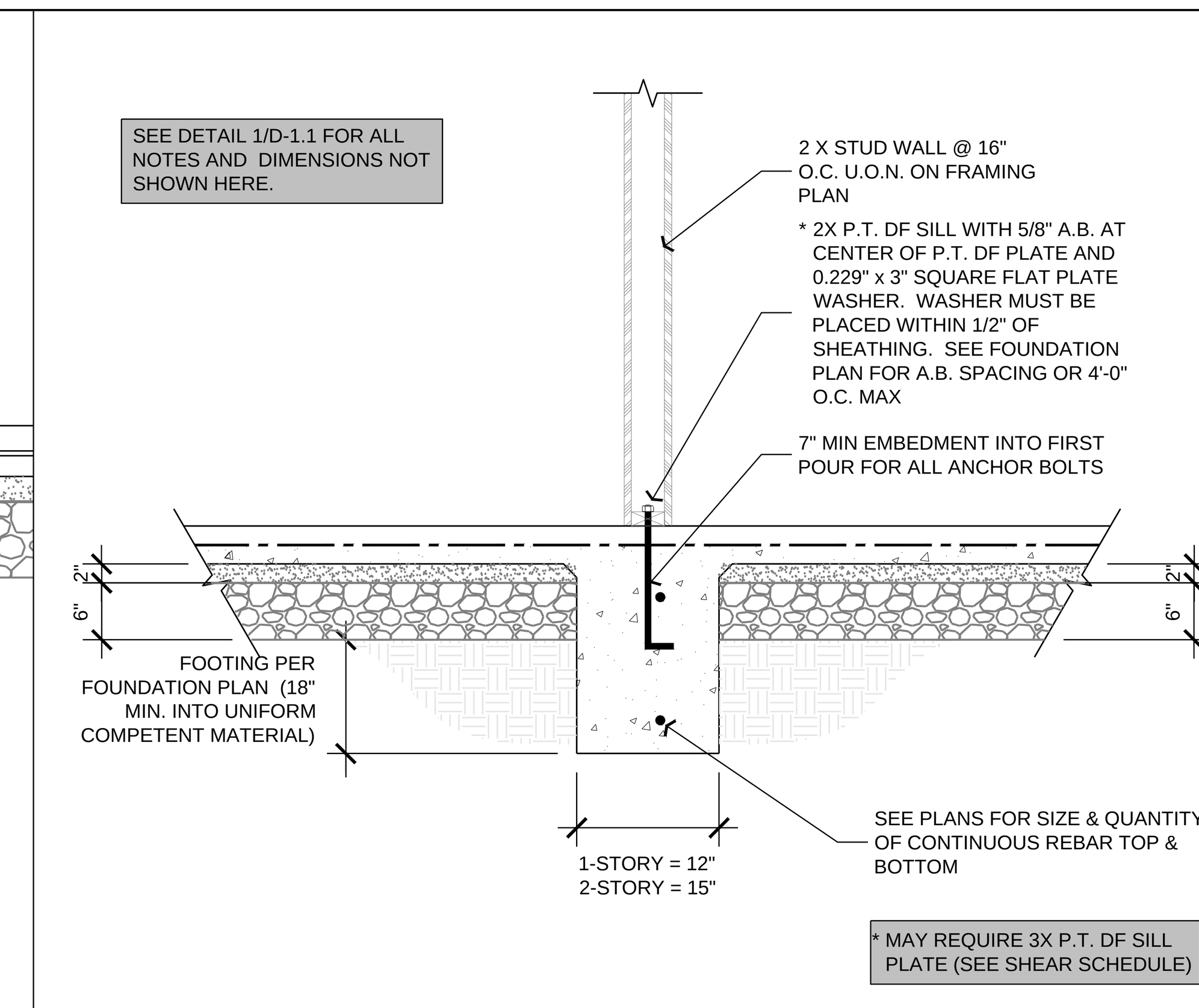
PROJECT NO. ----
FILE NAME S-2.1 ROOF FRAMING PLAN.DWG
DRAWN BY JJK
DATE 3/31/2017 8:00 AM
SHEET TITLE:
ROOF FRAMING PLAN

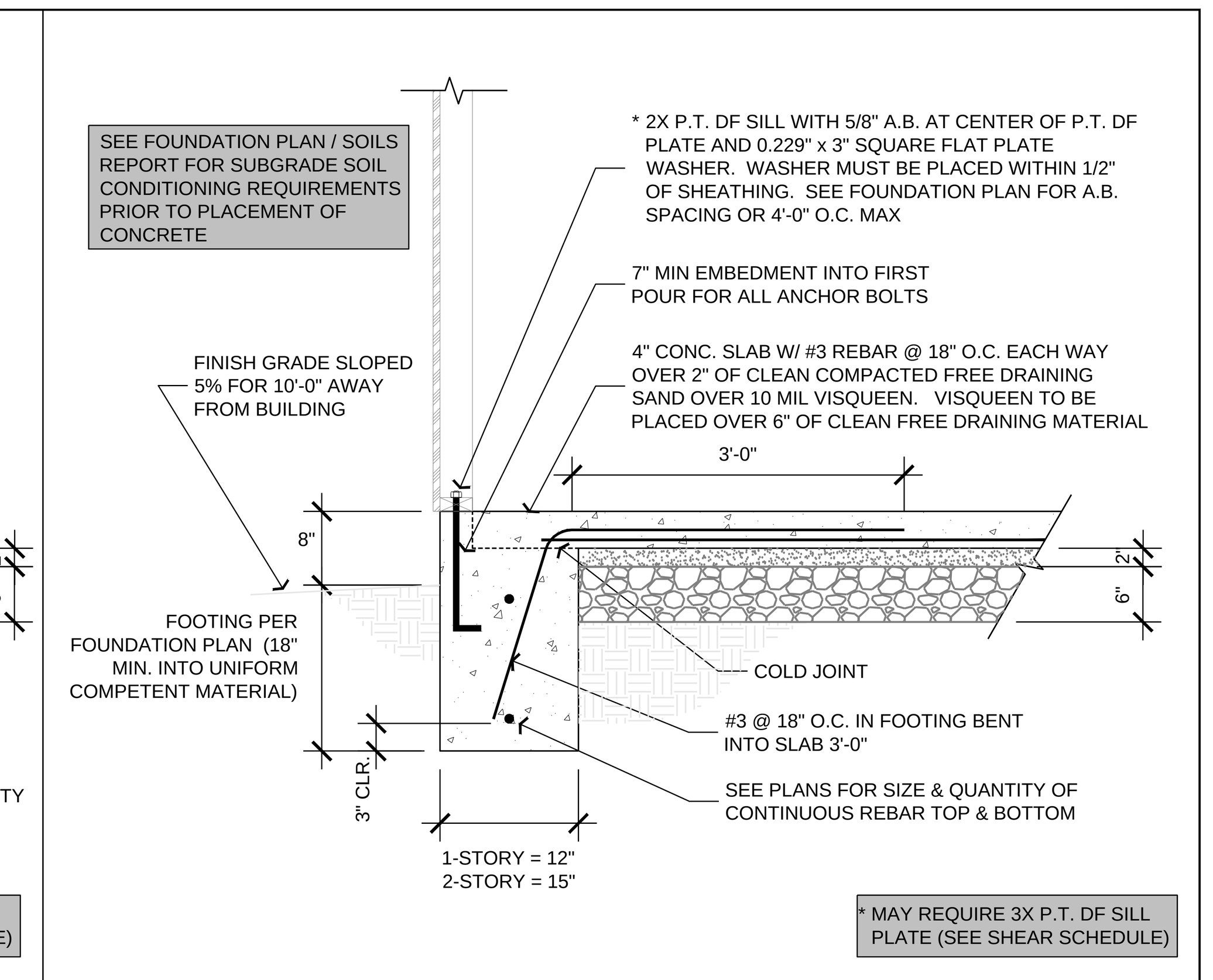
SHEET NUMBER:
S-2.1



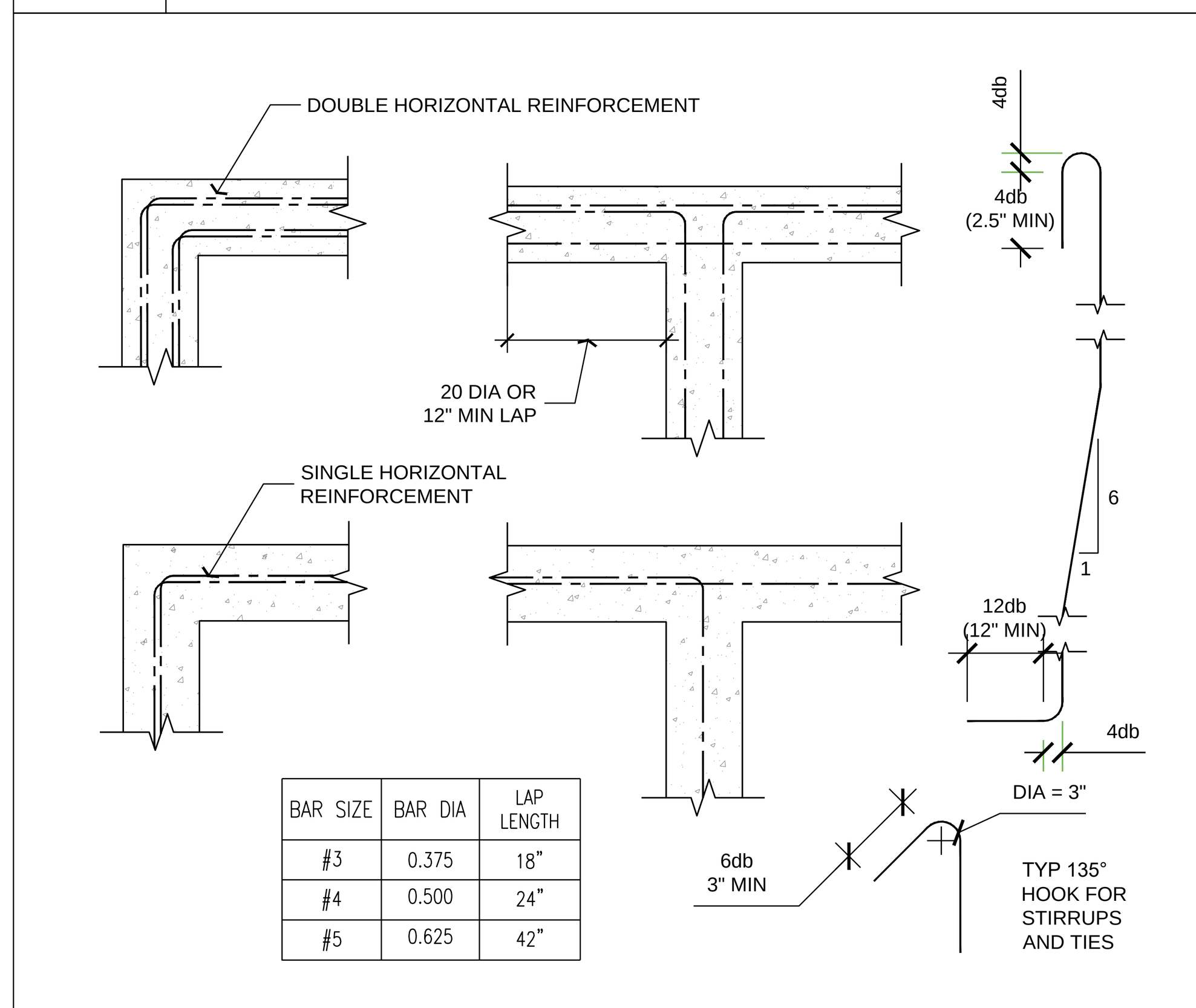
7 PERIMETER FOOTING



4 INTERIOR FOOTING

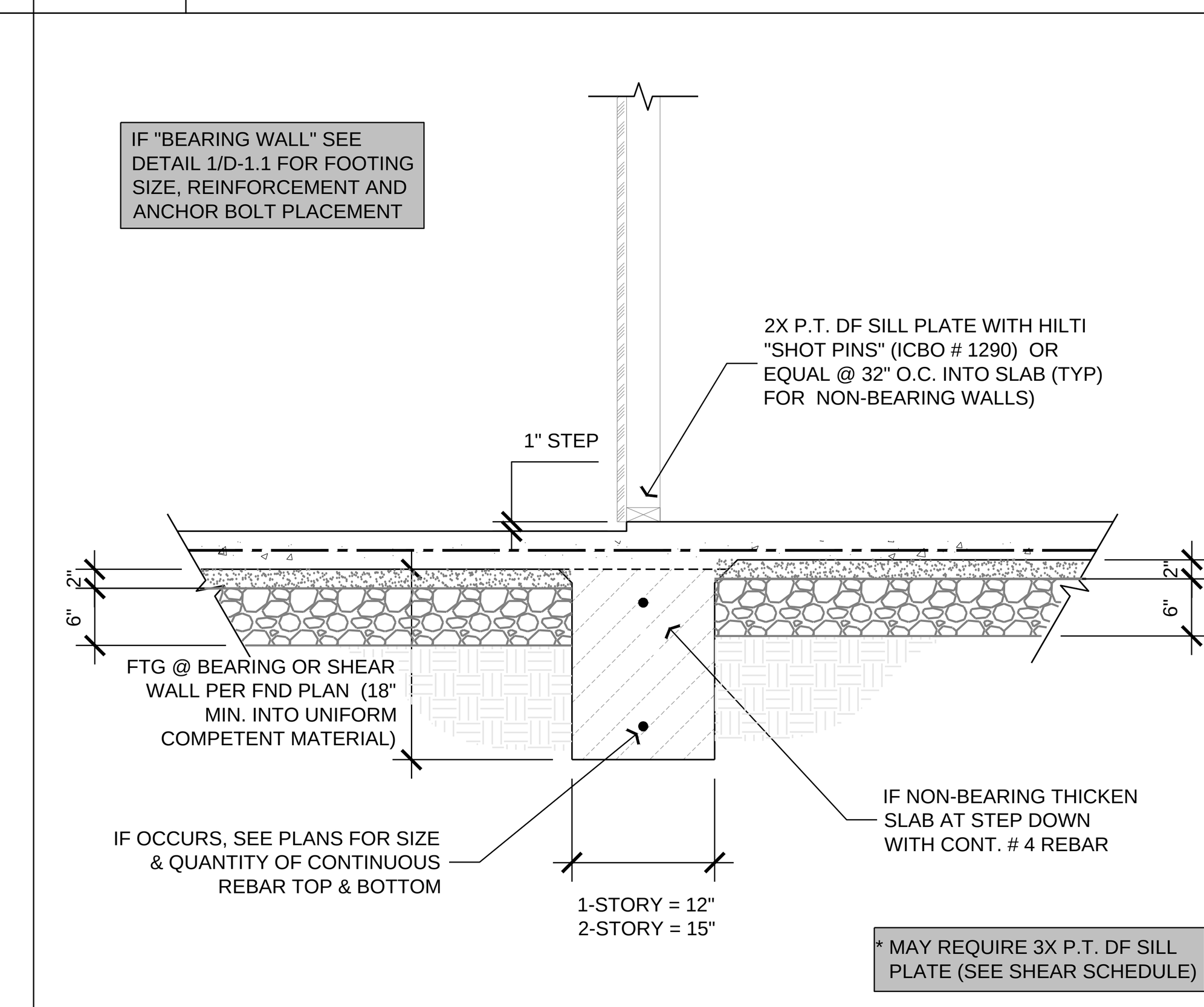


1 EXTERIOR FOOTING

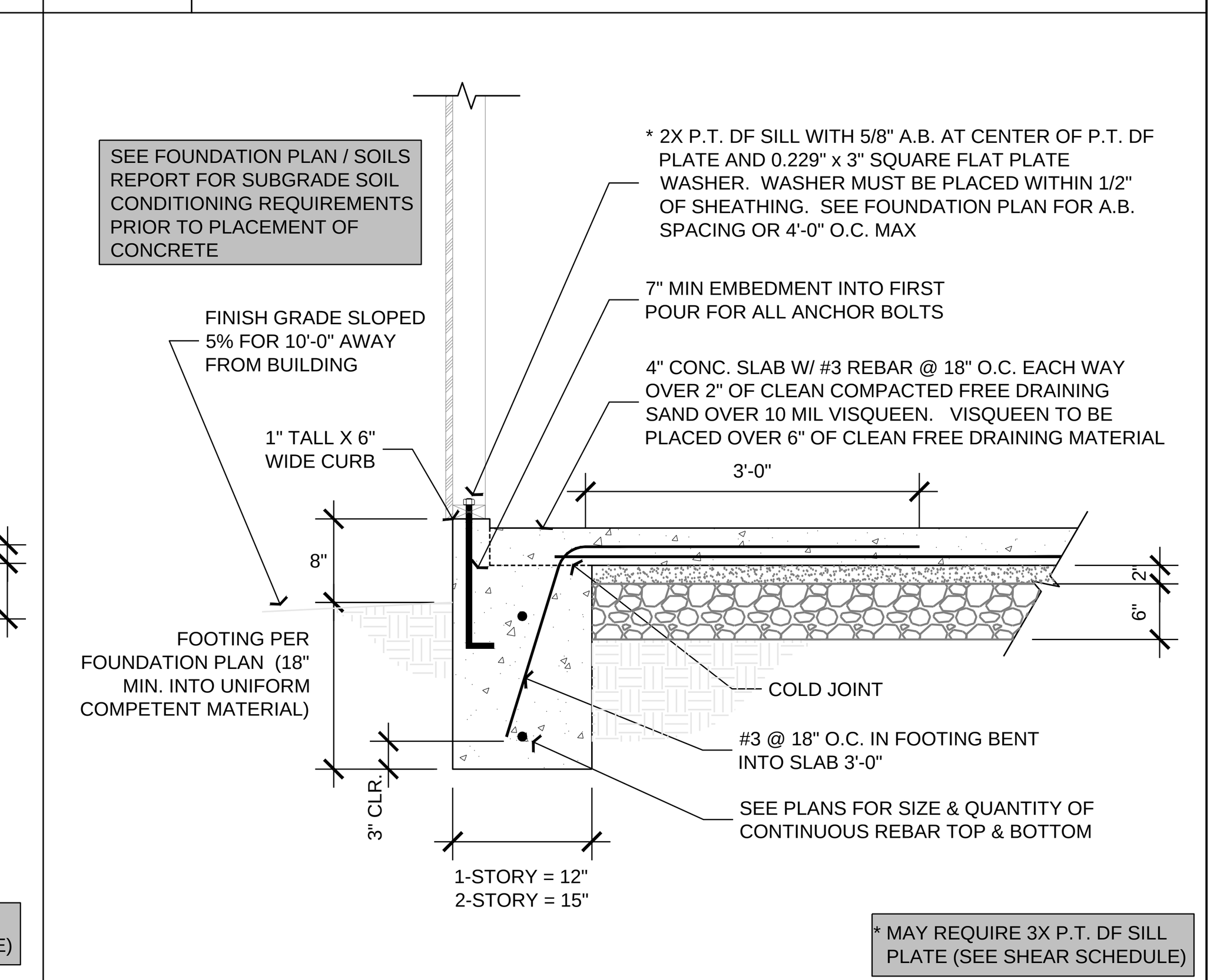


BAR SIZE	BAR DIA	LAP LENGTH
#3	0.375	18"
#4	0.500	24"
#5	0.625	42"

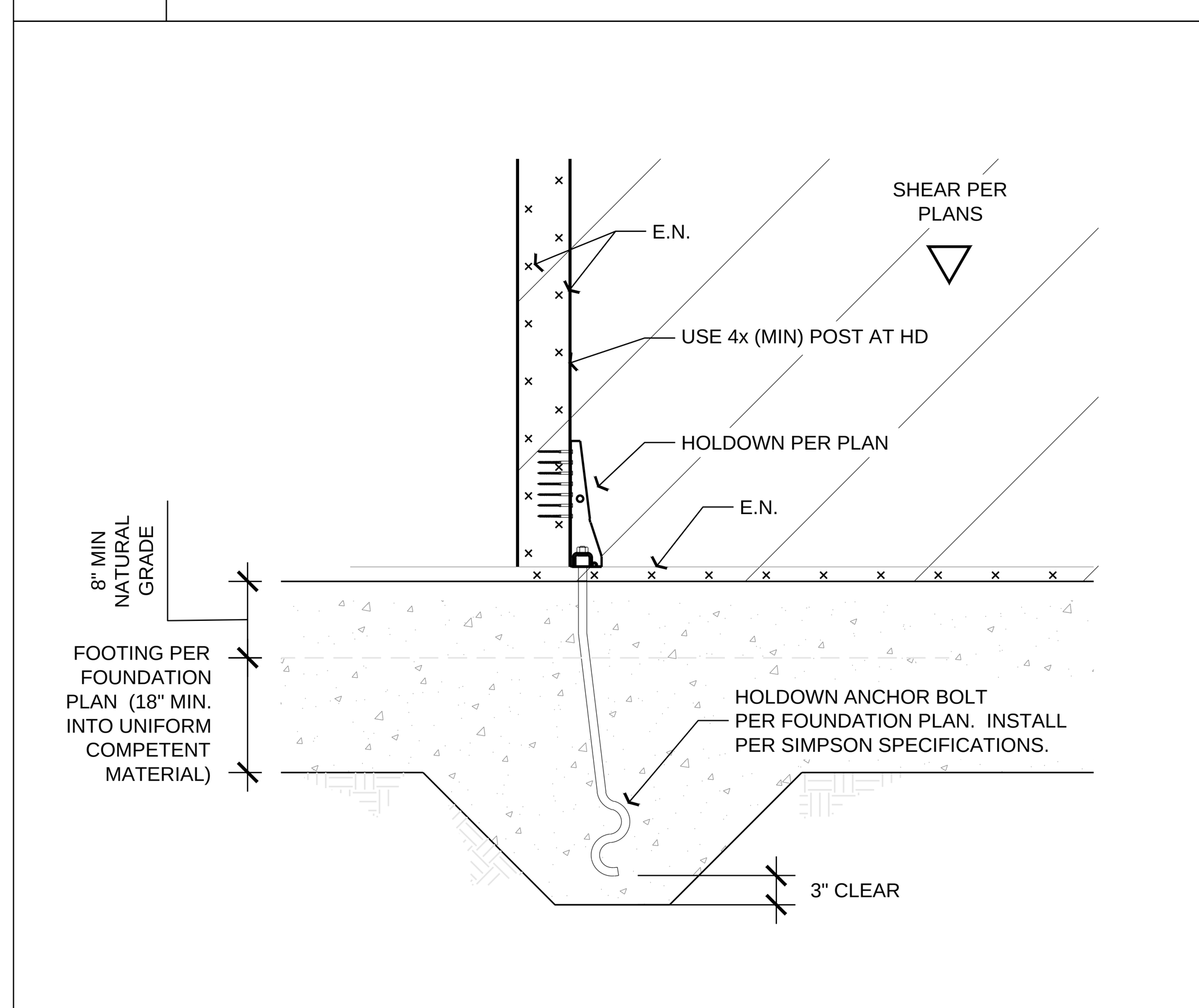
8 TYPICAL HORIZONTAL REINFORCING



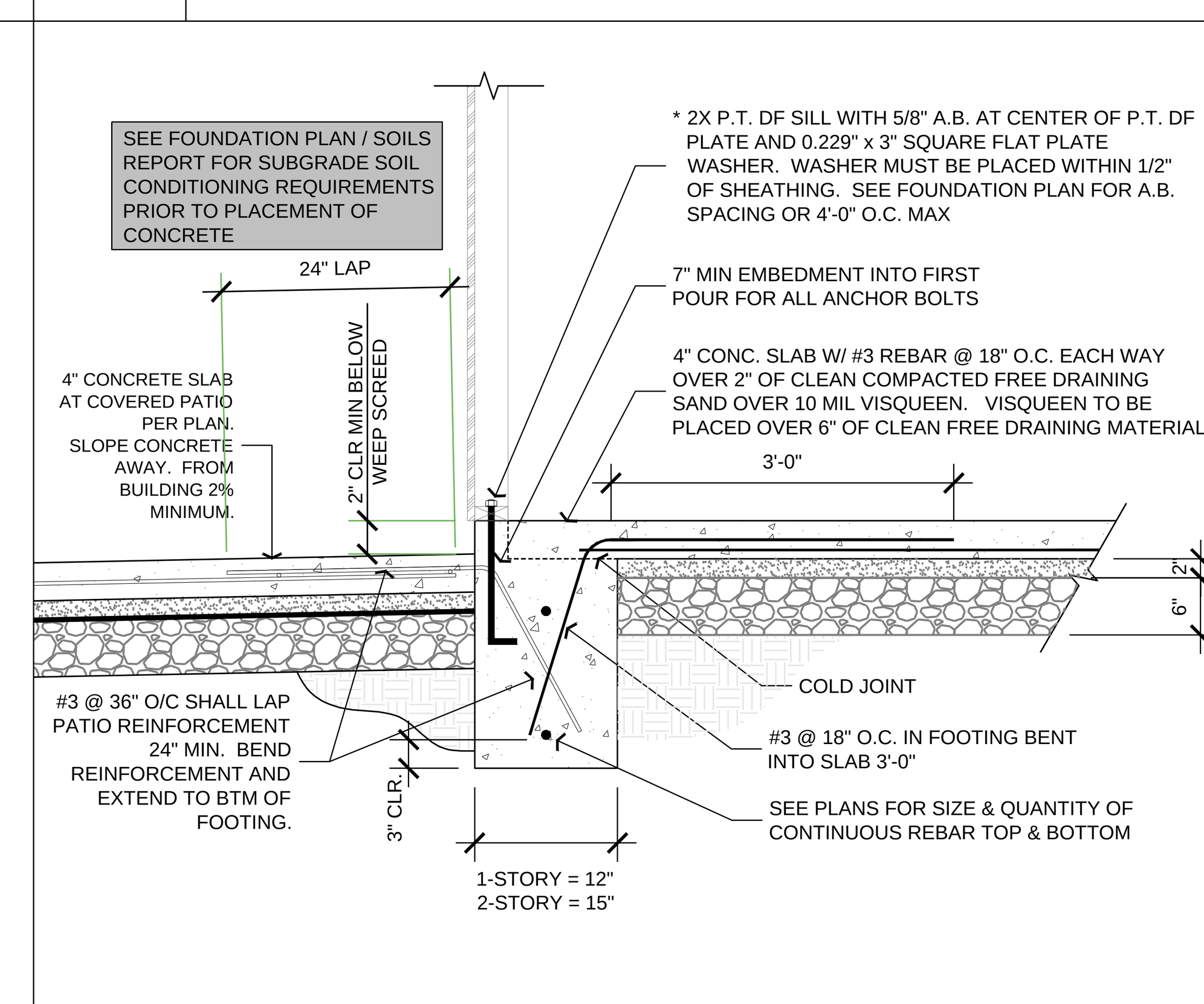
5 SLAB @ GARAGE



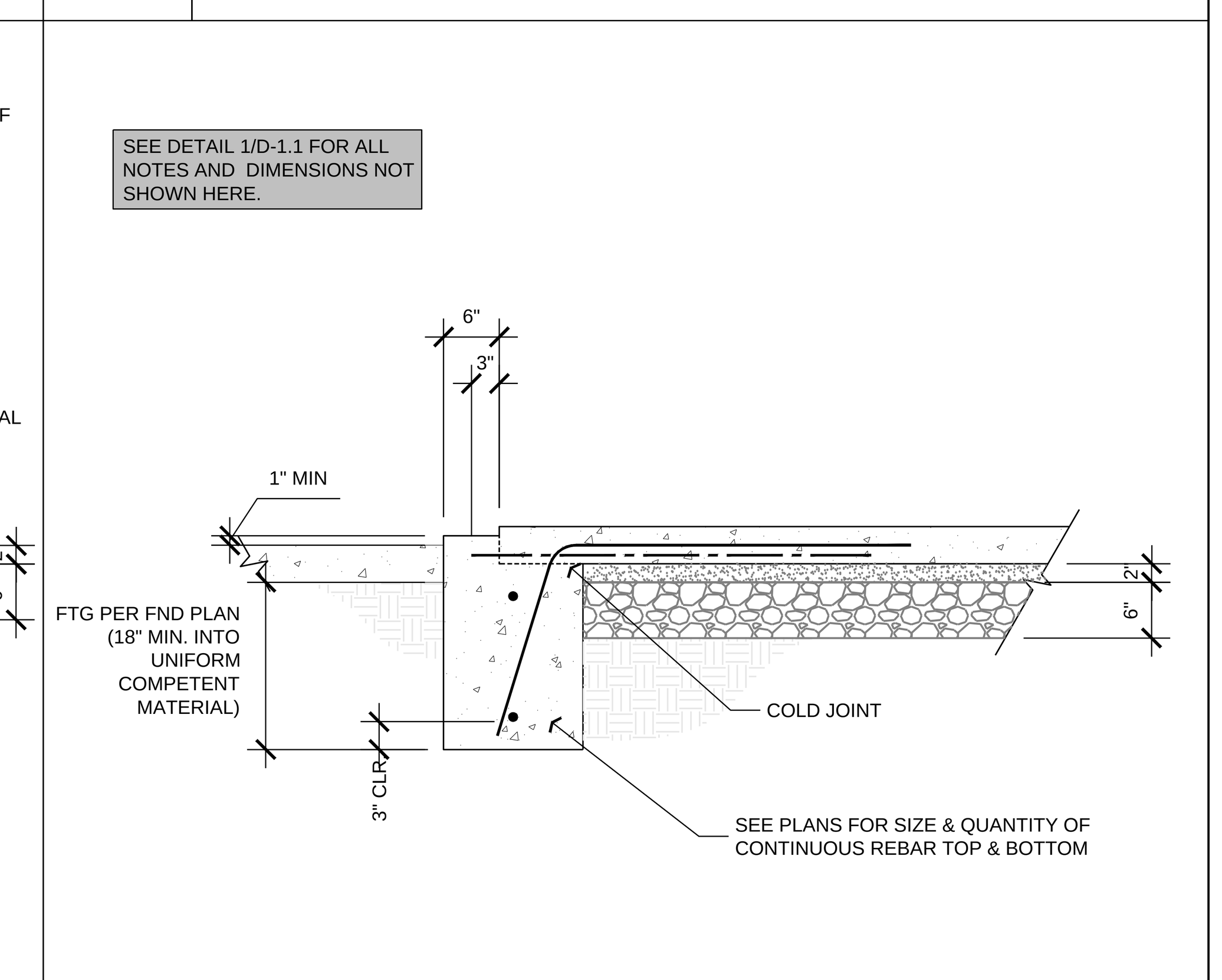
2 EXTERIOR FOOTING AT GARAGE



9 HOLDOWN DETAIL



6 EXTERIOR FOOTING AT PATIO SLAB



3 FOOTING AT GARAGE DOOR

ENGINEERING
239-4151

John A. Kudla
Civil Engineering & Structural Design
R.C.E. #50652
610 10th ST. UNIT 'A' PASO ROBLES, CA.

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STRUCTURAL DETAILS

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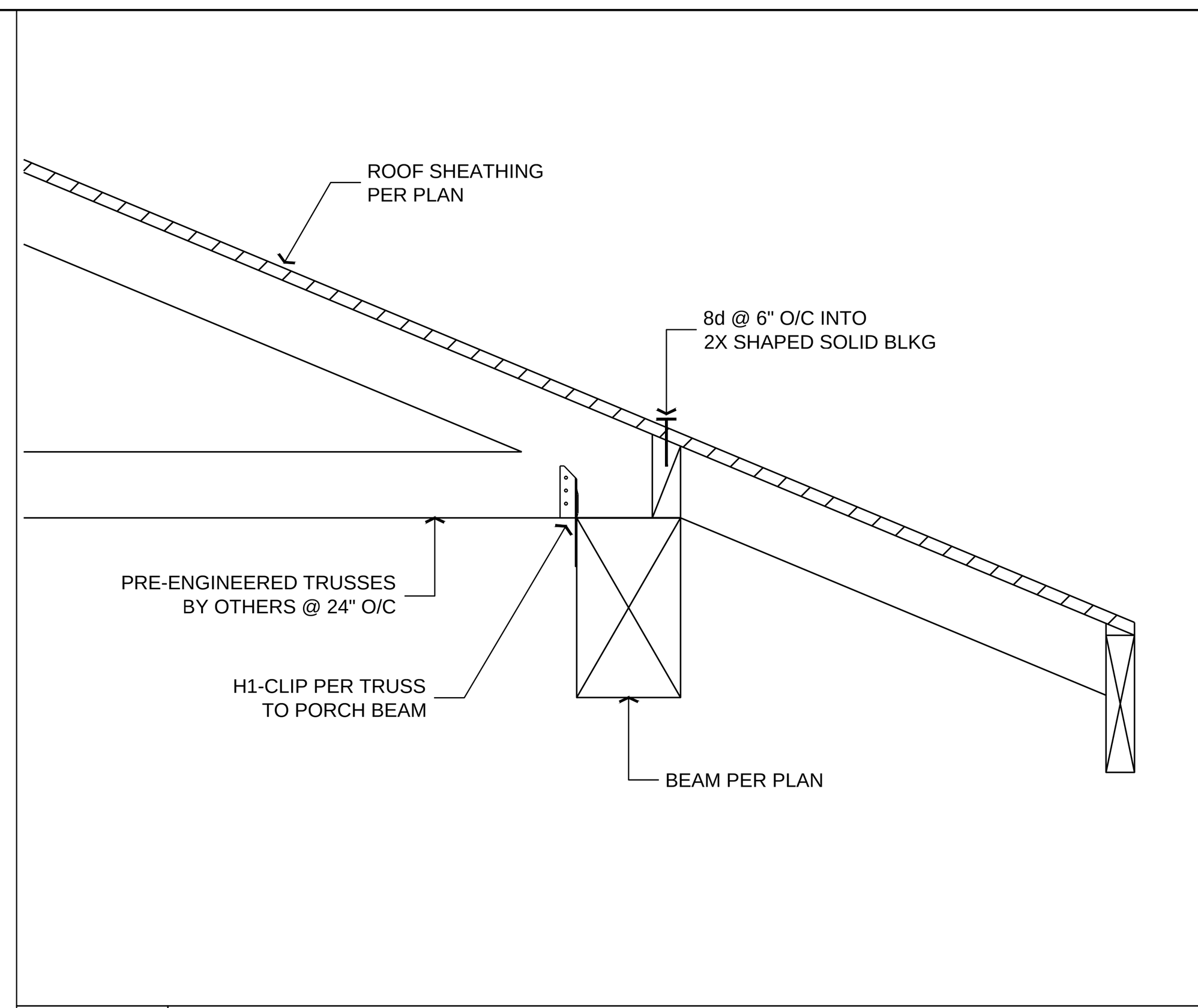
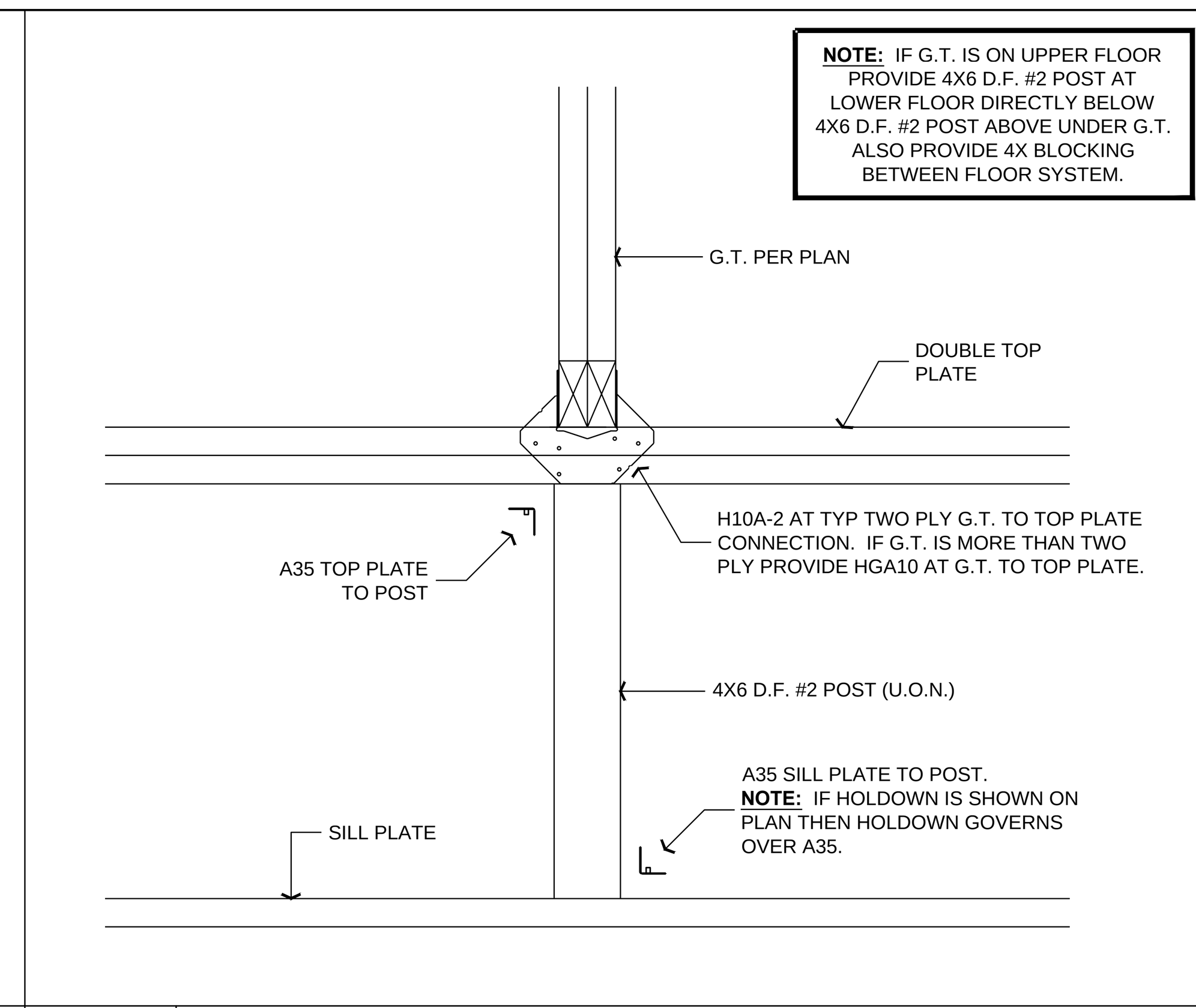
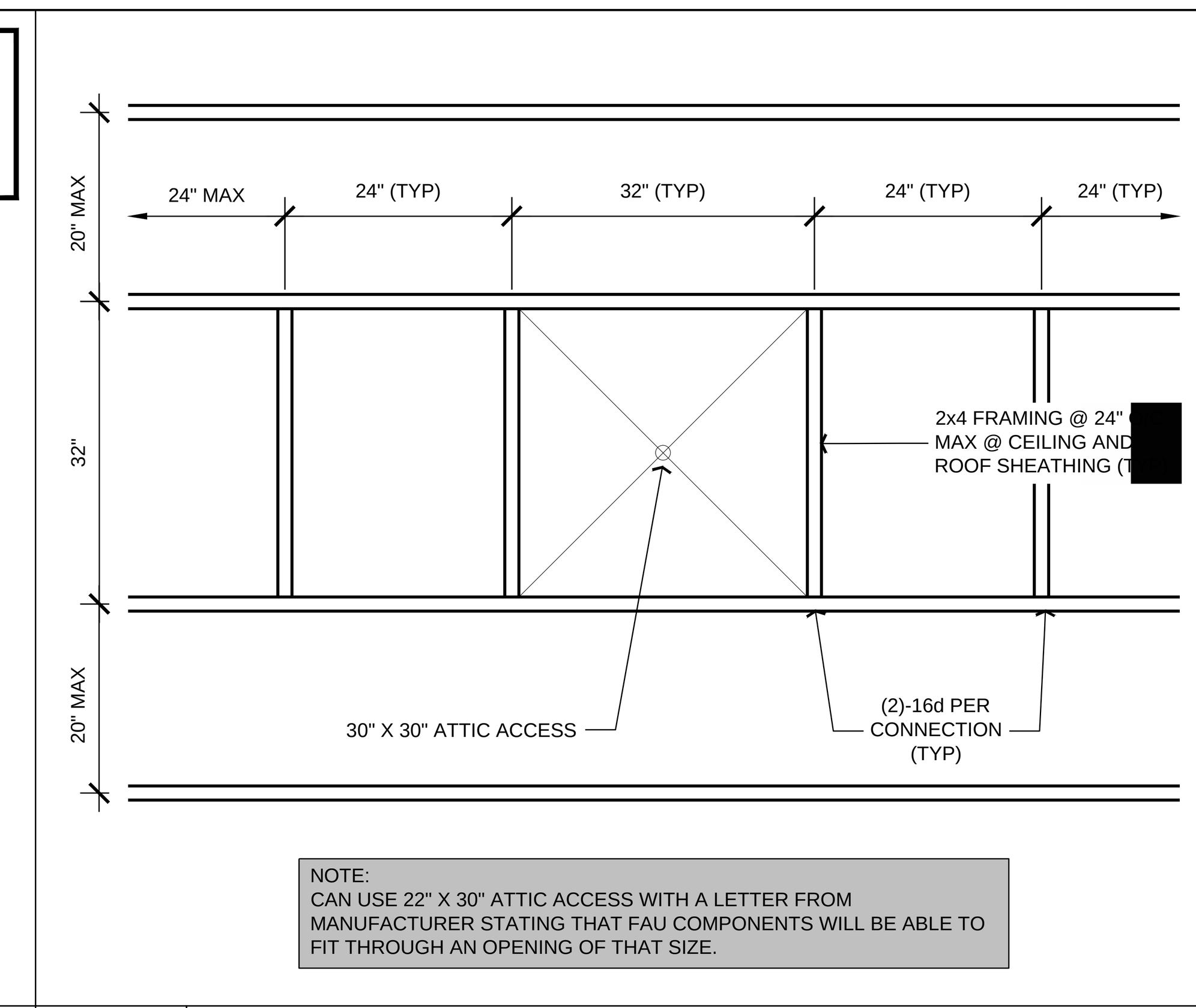


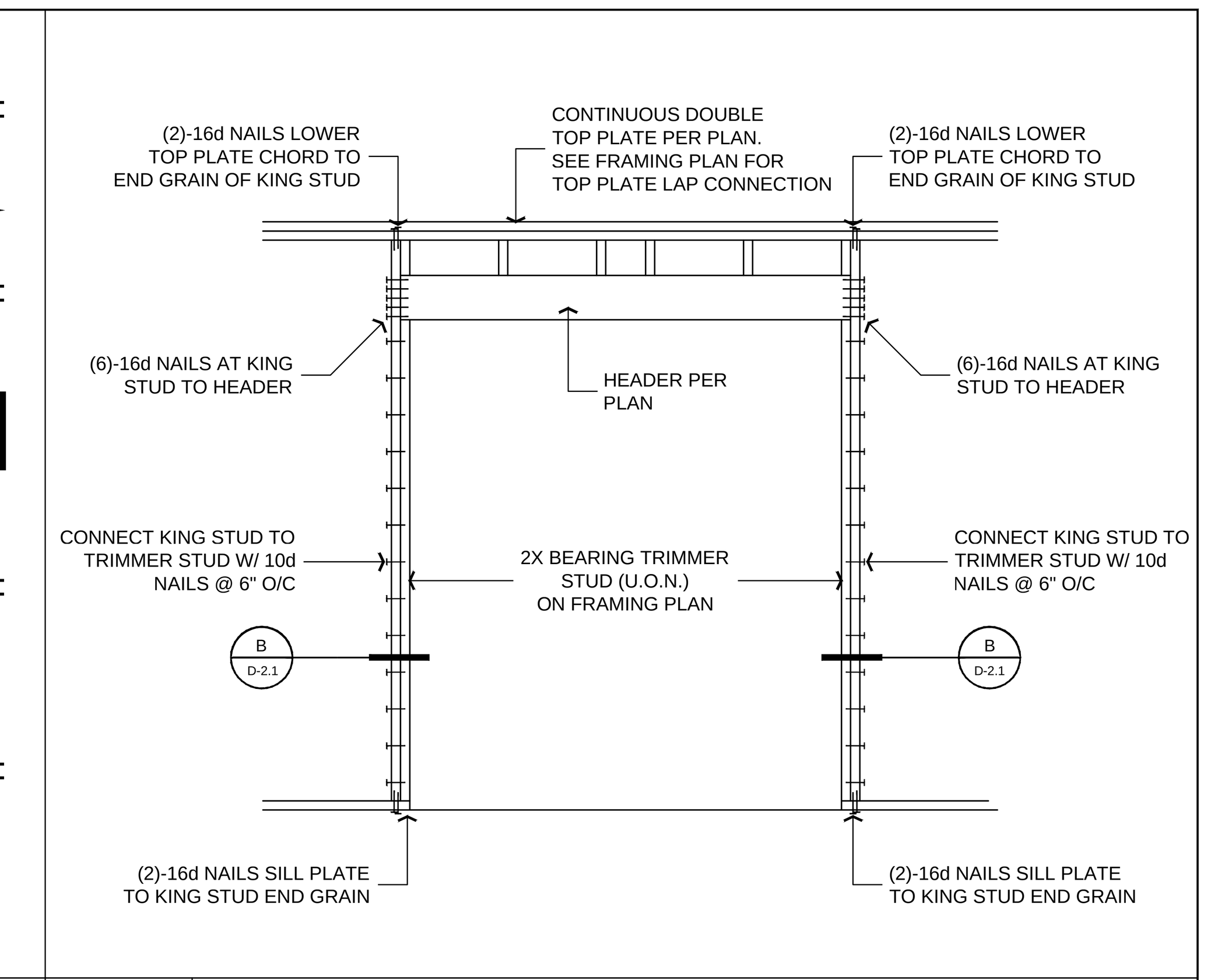
J — SHEAR TRANSFER - TRUSS EAVE TO BEAM



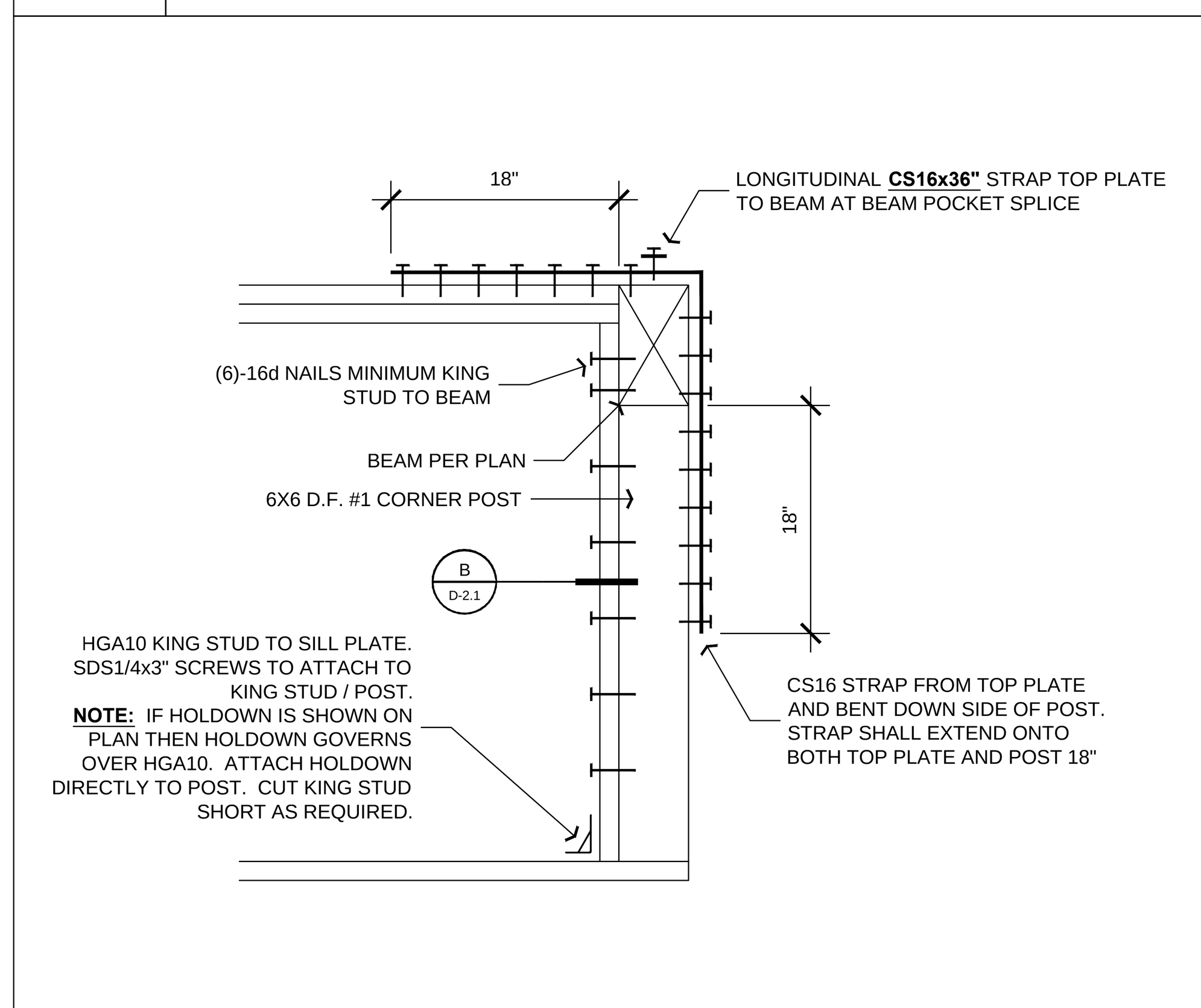
G — TYP GIRDER TRUSS CONNECTION



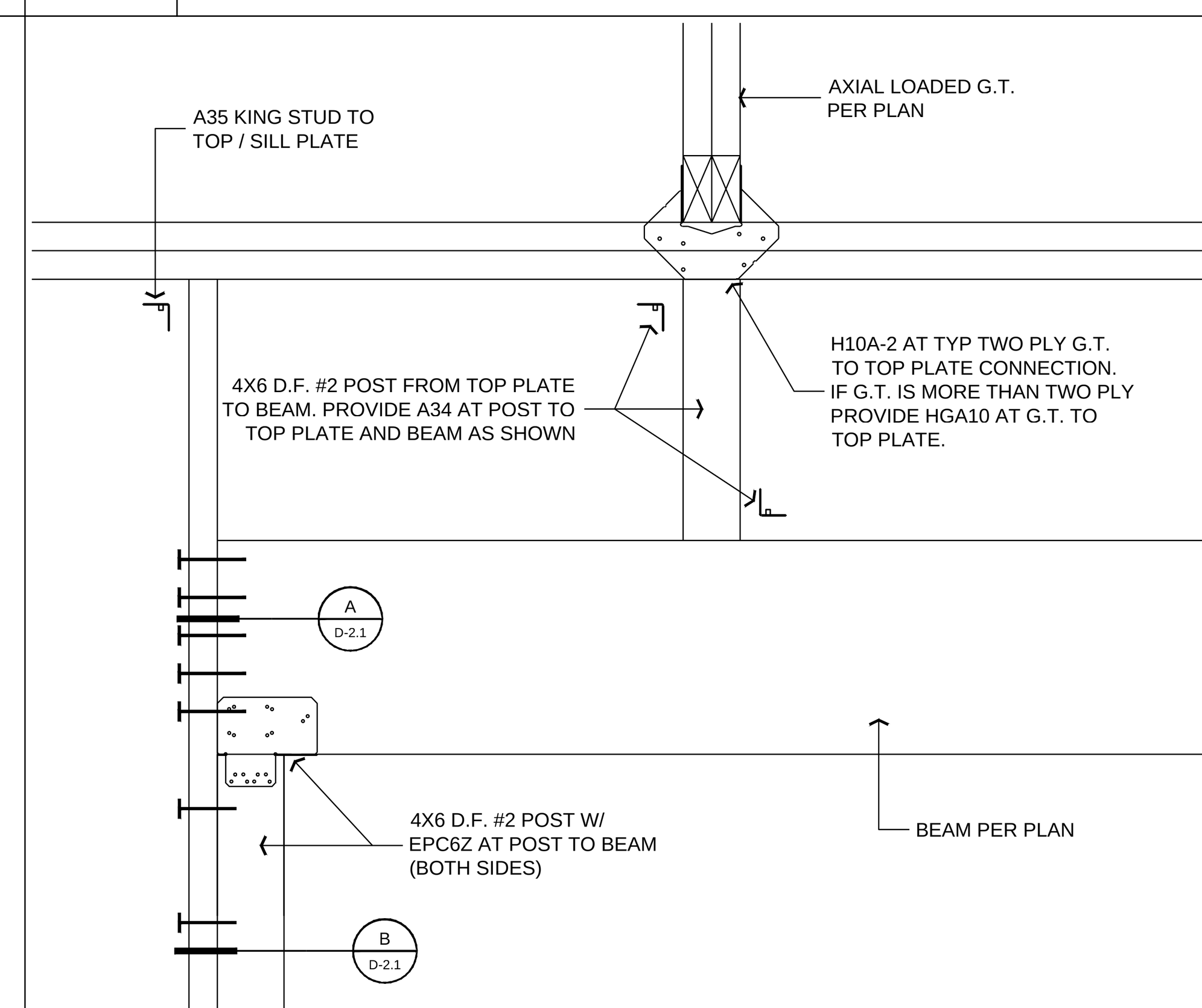
D — 30" OPENING @ TRUSS



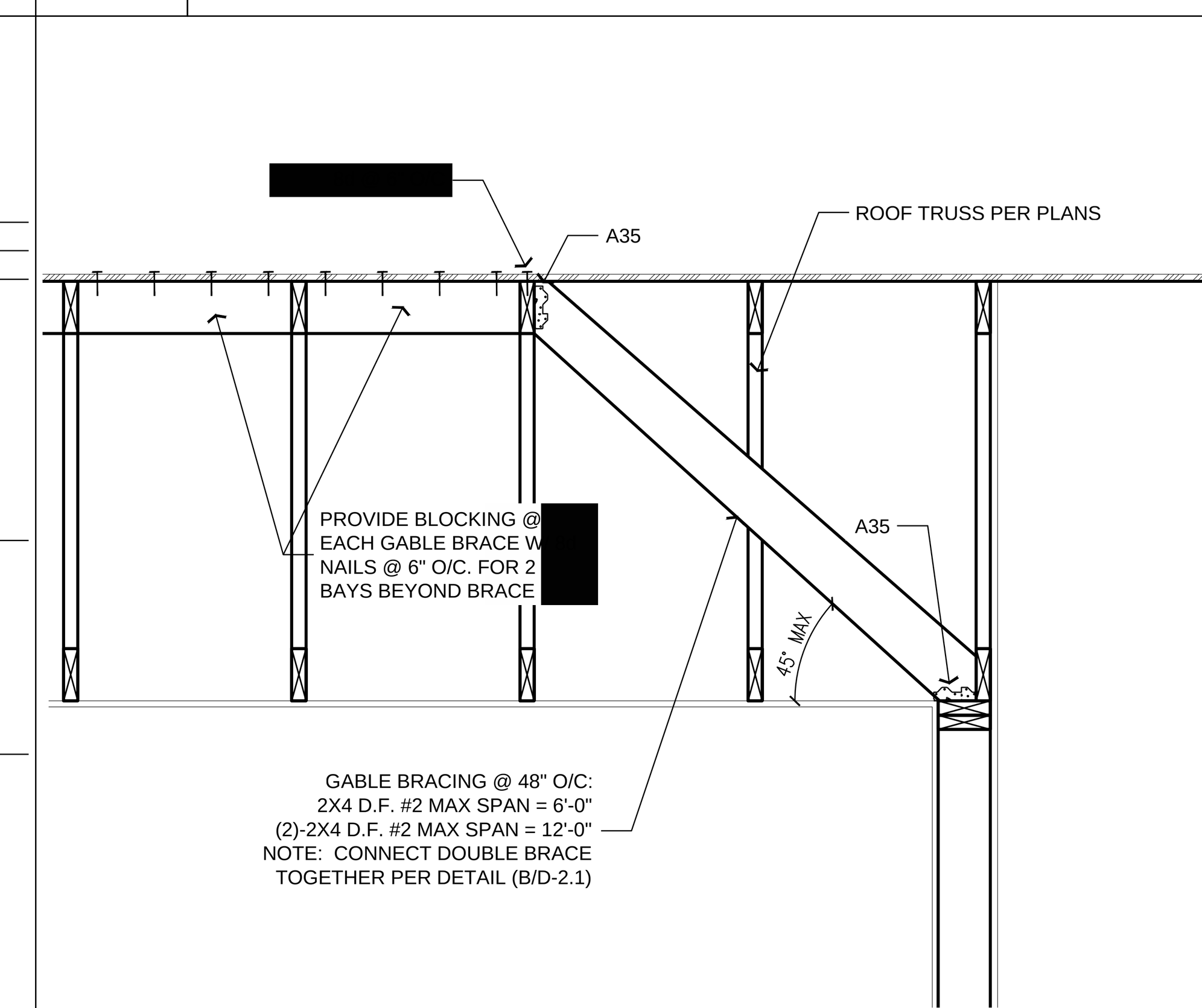
A — TYP FRM AT WINDOW / DOOR OPENING (U.O.N.)



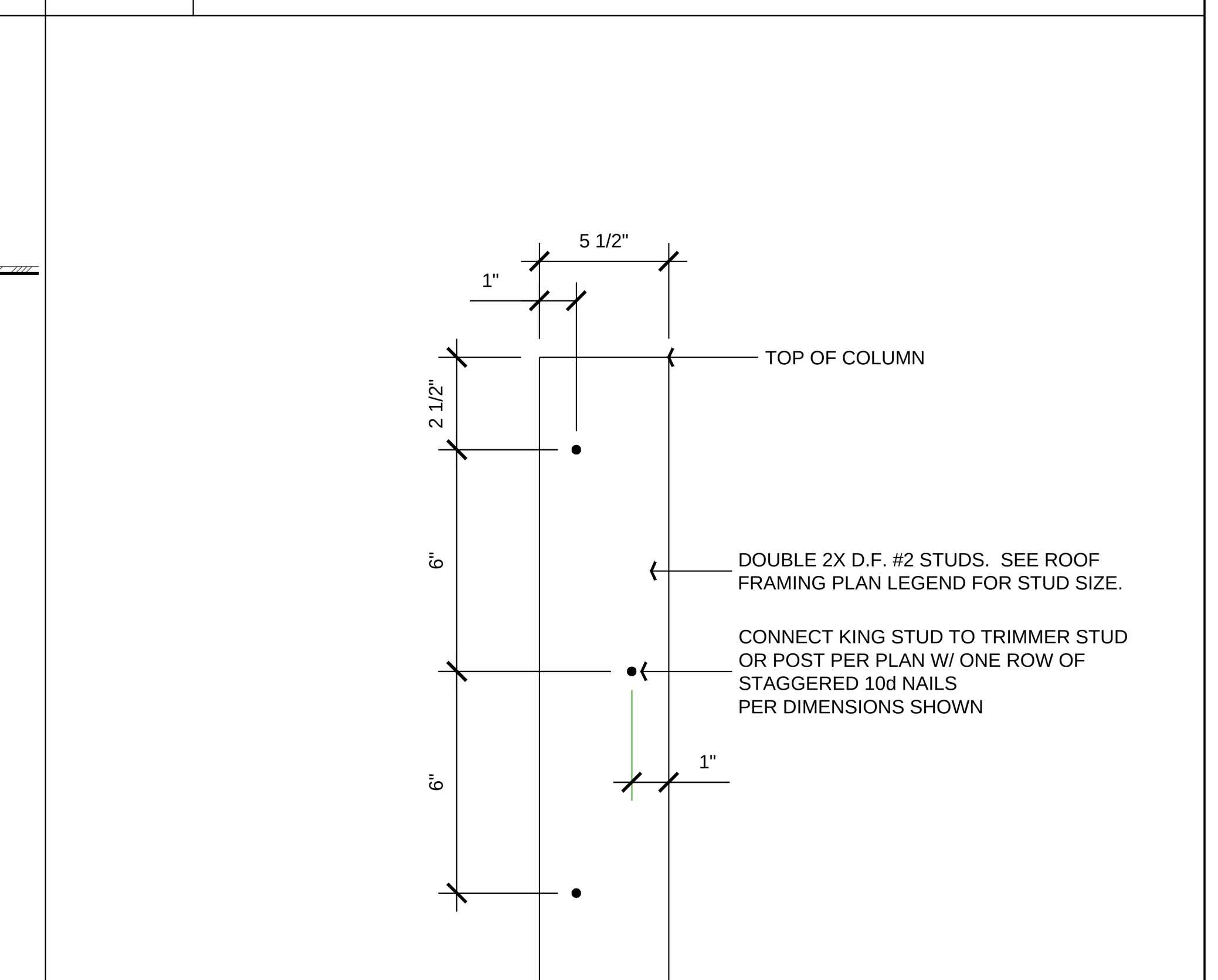
K — BEAM POCKET DETAIL



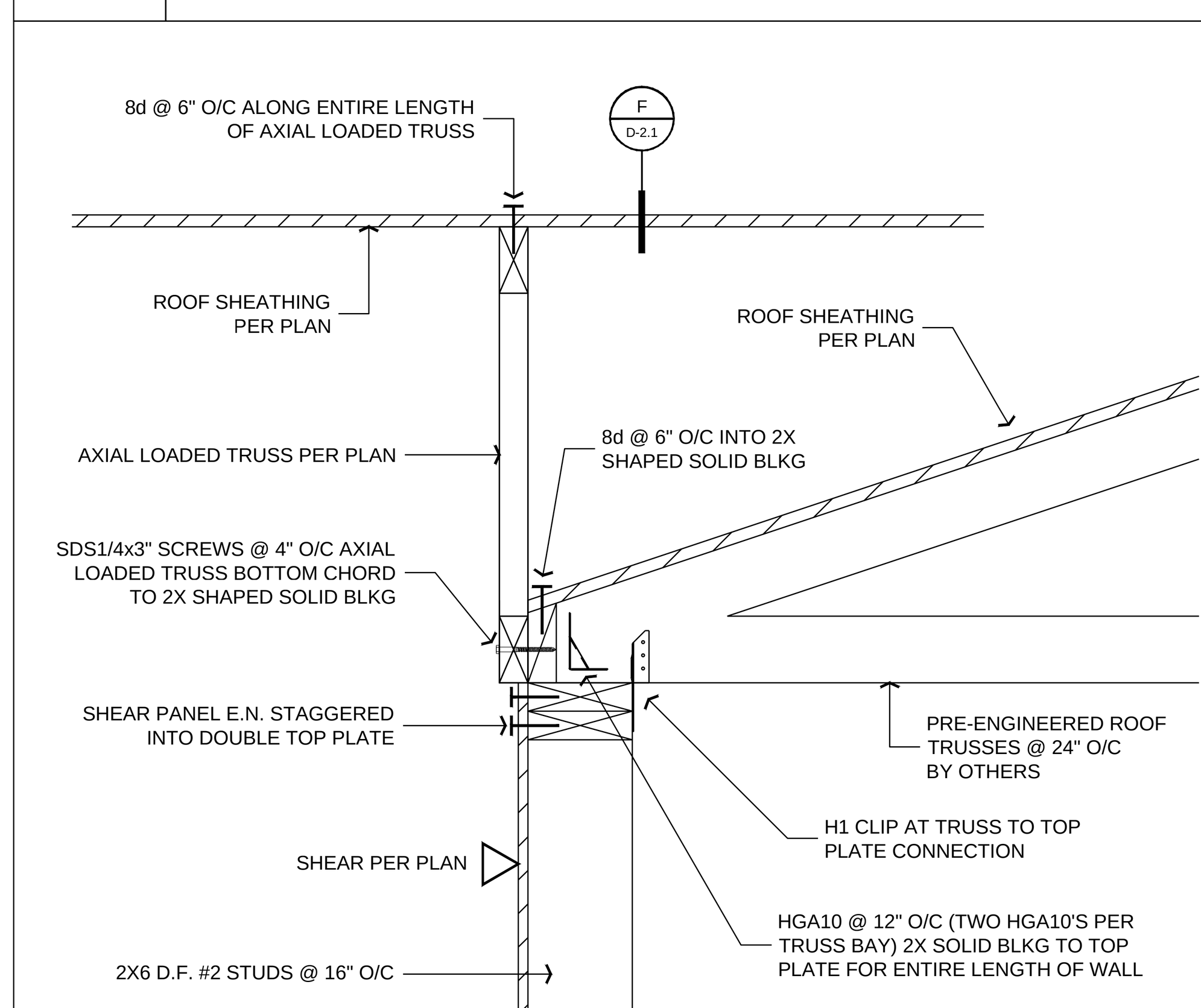
H — TYP G.T. OVER HEADER CONNECTION



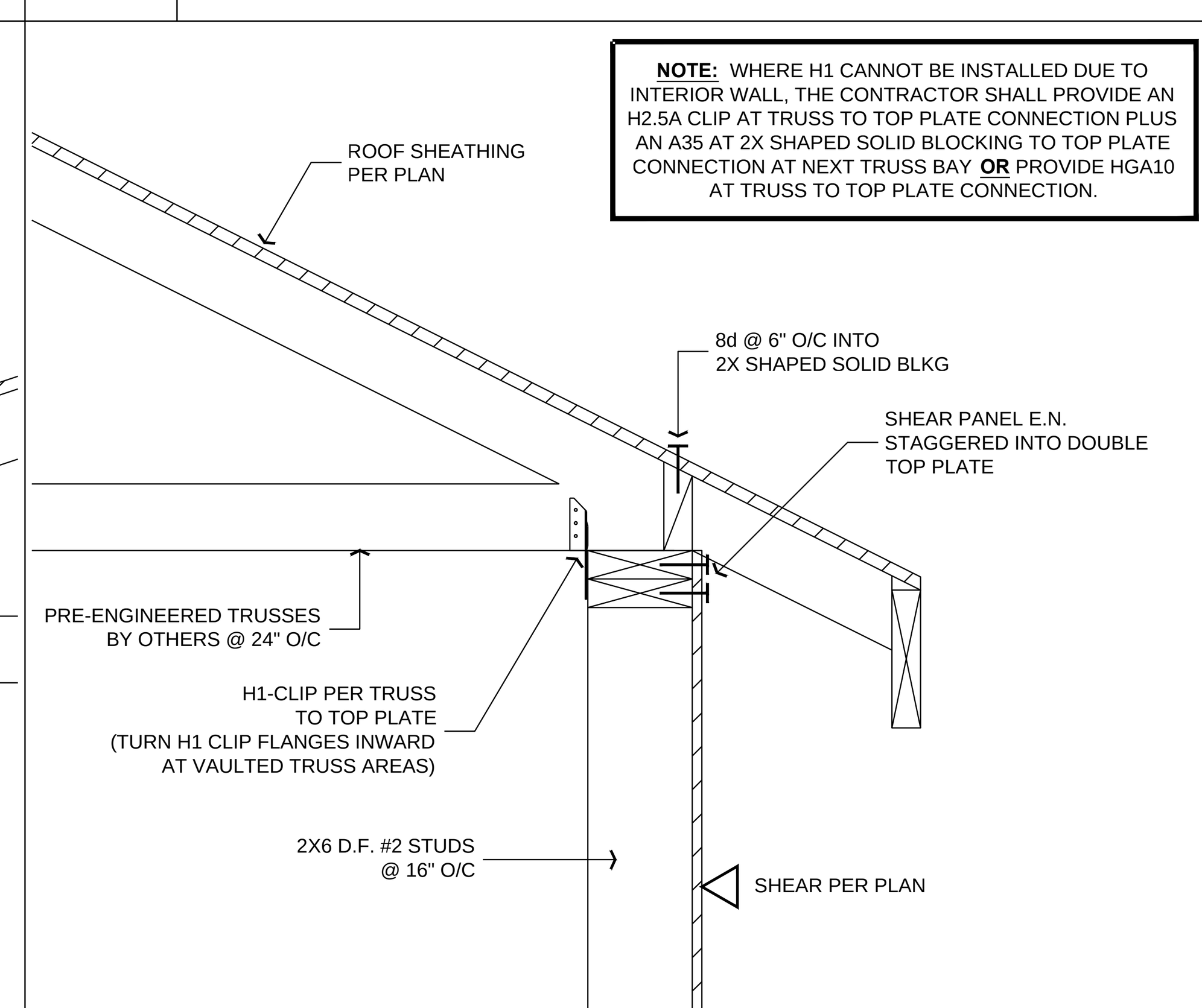
E — OUT-OF-PLANE SHEAR TRANSFER



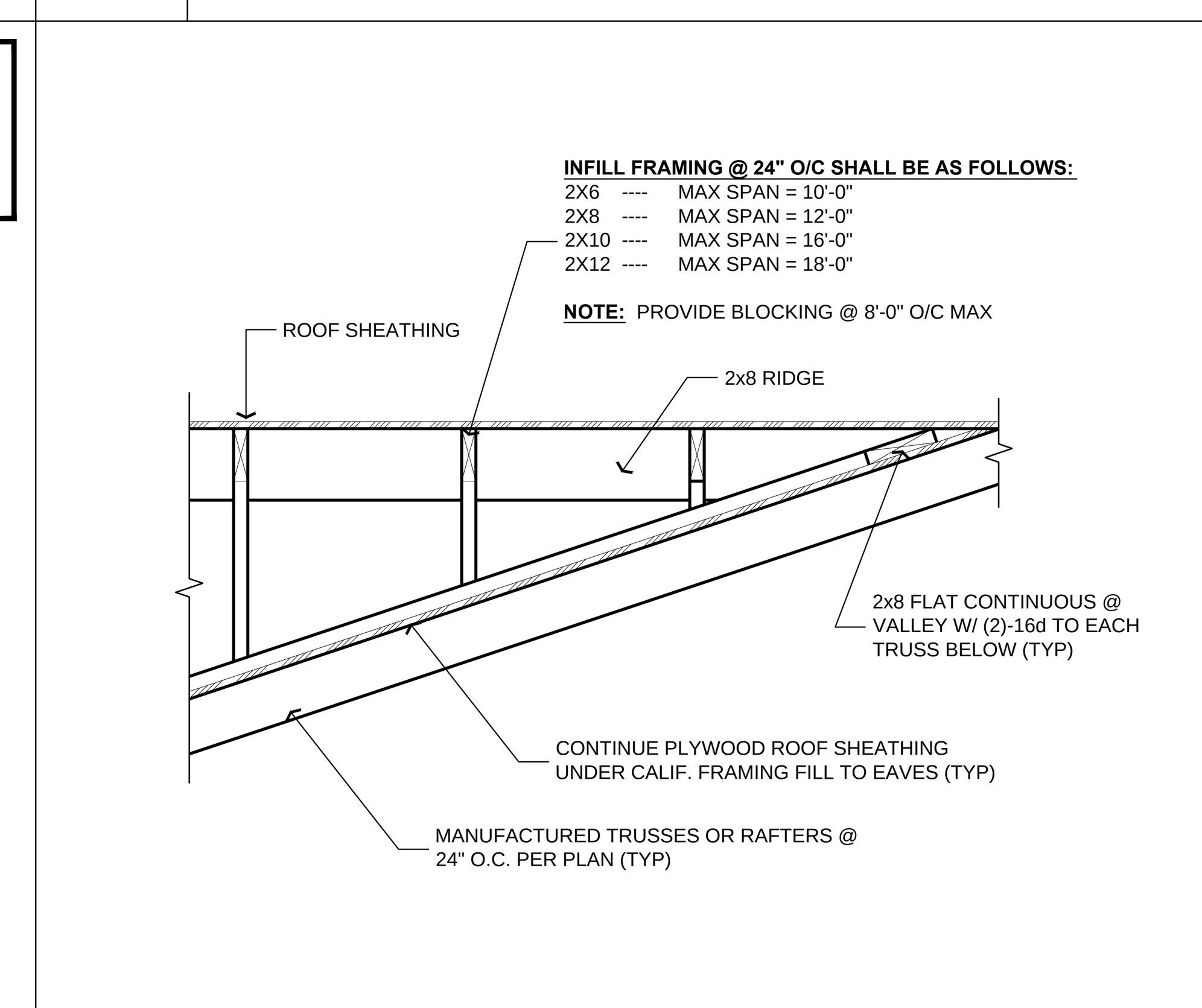
B — BUILT UP DOUBLE STUD COLUMN



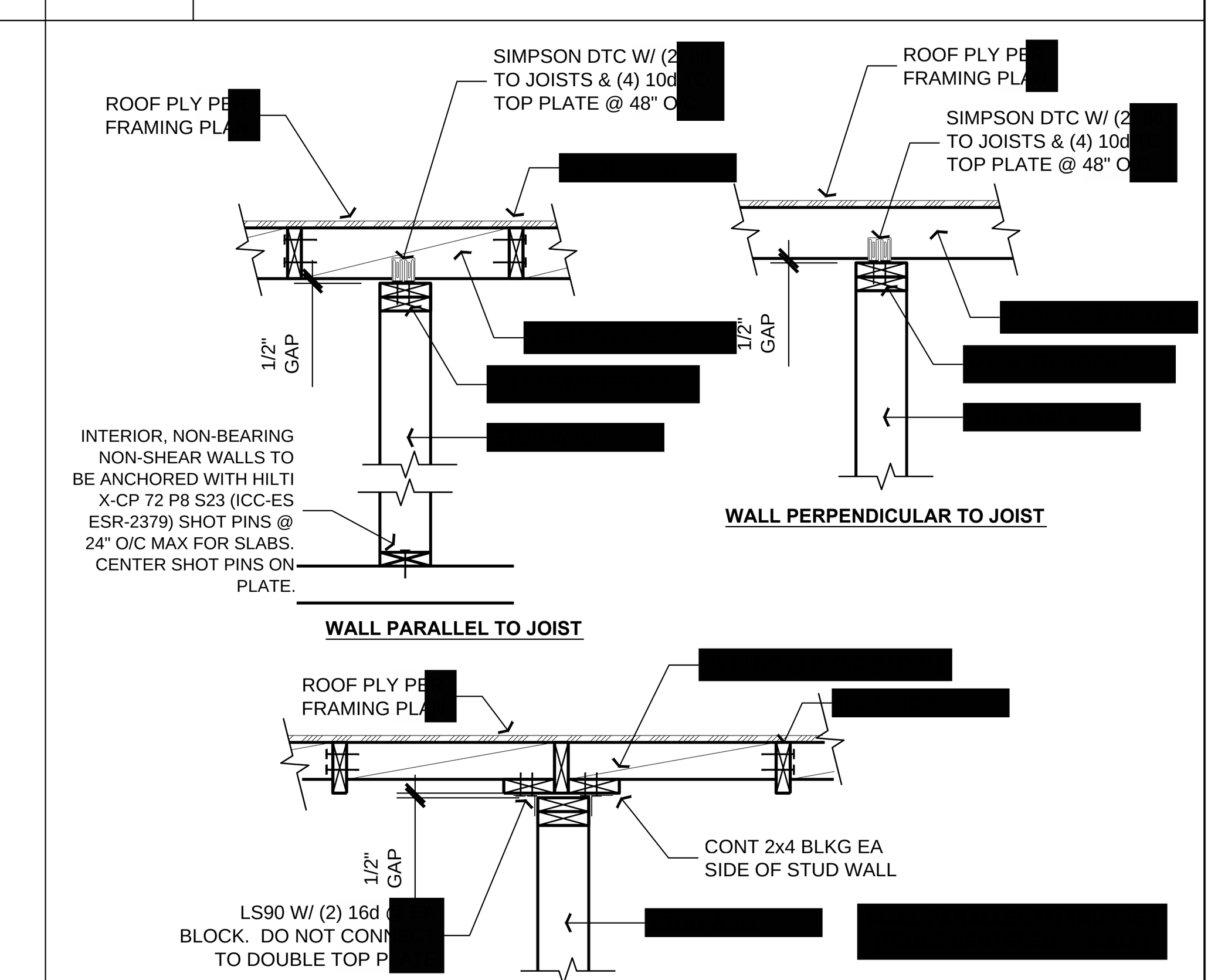
L — SHEAR TRANSFER - LAYOUT TRANSITION



I — SHEAR TRANSFER - TRUSS EAVE CONNECTION



F — CALIFORNIA FRAMING



C — INTERIOR NON-BRG WALL DETAIL

JK ENGINEERING
239-4151
John A. Kudla
Civil Engineering & Structural Design
R.C.E. #50652
610 10th ST. UNIT 'A' PASO ROBLES, CA.

PLAN PREPARED FOR:

KIRK & CARRIE ALLEN
LOT 106 TRACT 1990-2
PASO ROBLES, CA 93446

REVISION LOG

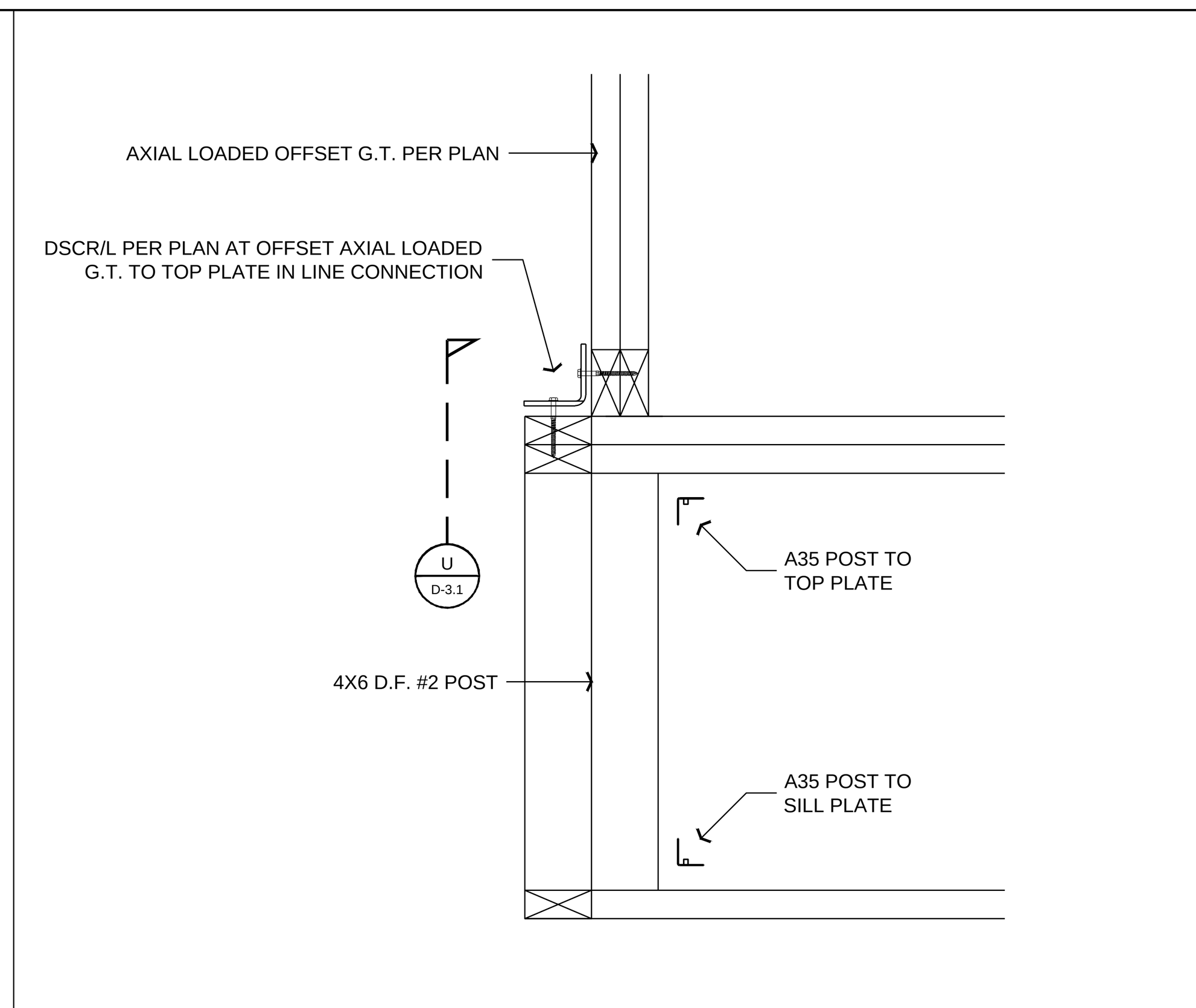
REV.	DESCRIPTION	DATE

PROJECT NO. ---
FILE NAME D-2.1 STRUCTURAL DETAILS.DWG
DRAWN BY JJK
DATE 3/31/2017 8:07 AM
SHEET TITLE:

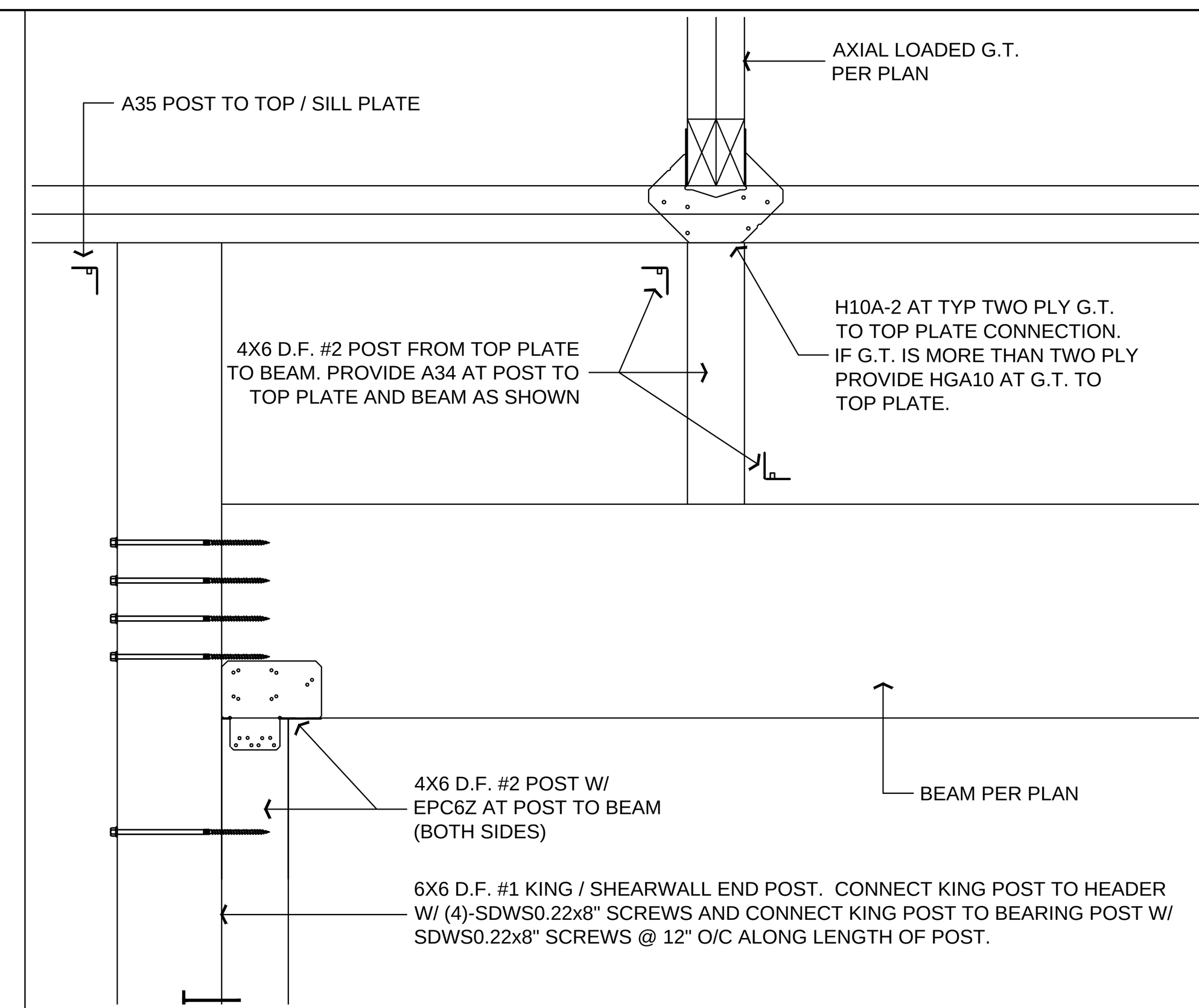
STRUCTURAL DETAILS

SHEET NUMBER:

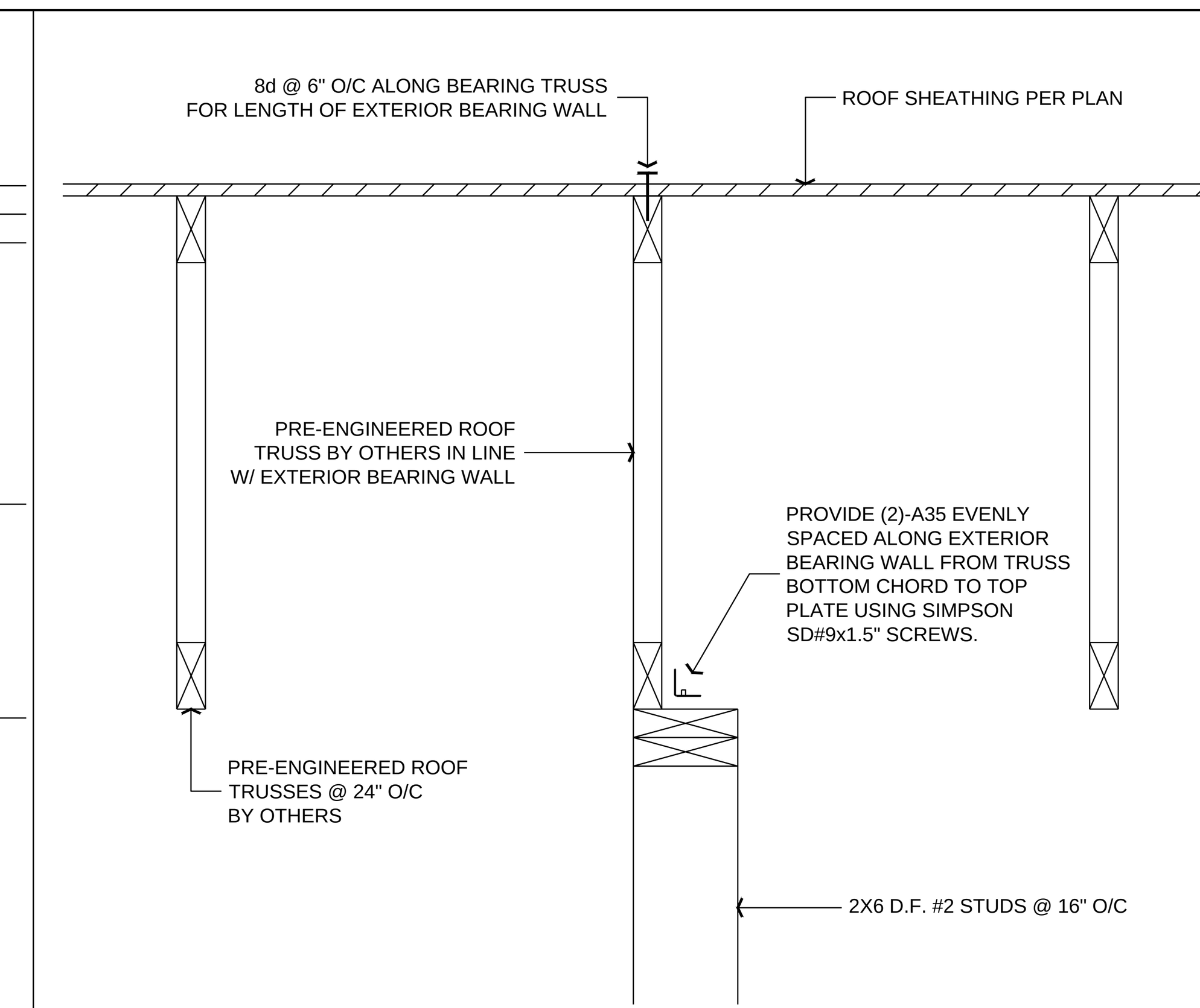
D-2.1



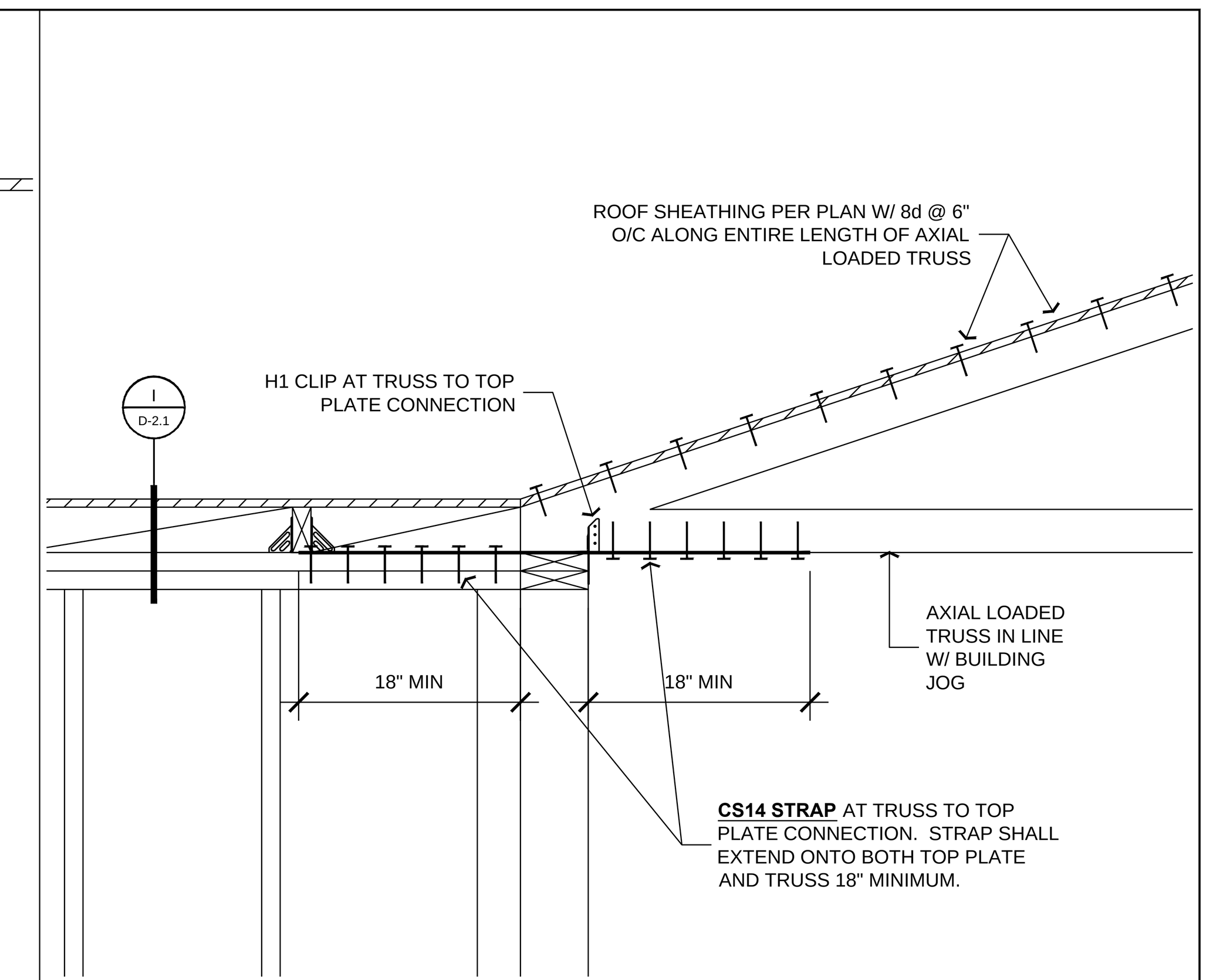
V DRAG CONNECTION - G.T. TO TOP PLATE



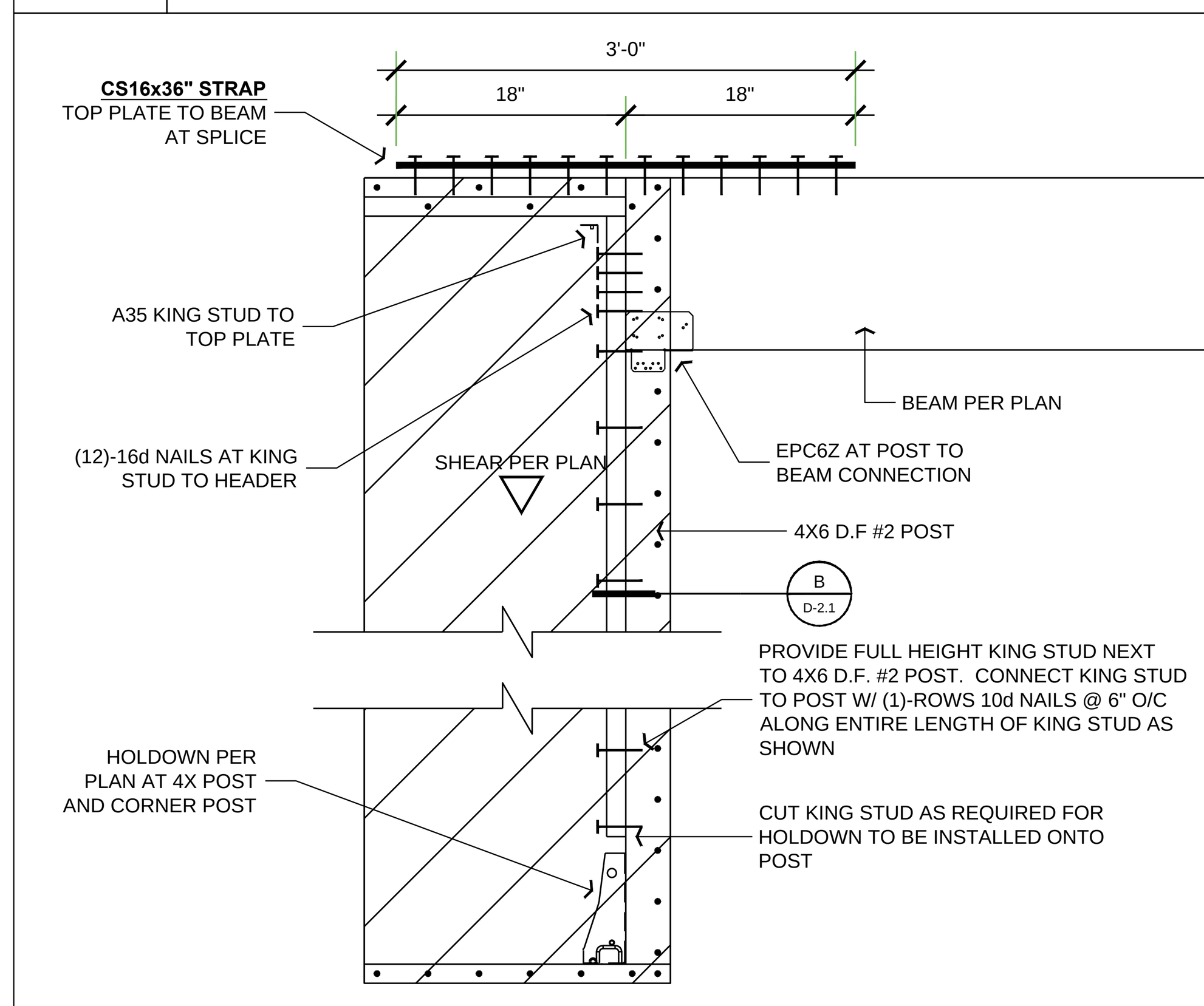
S TYP G.T. OVER HEADER CONNECTION



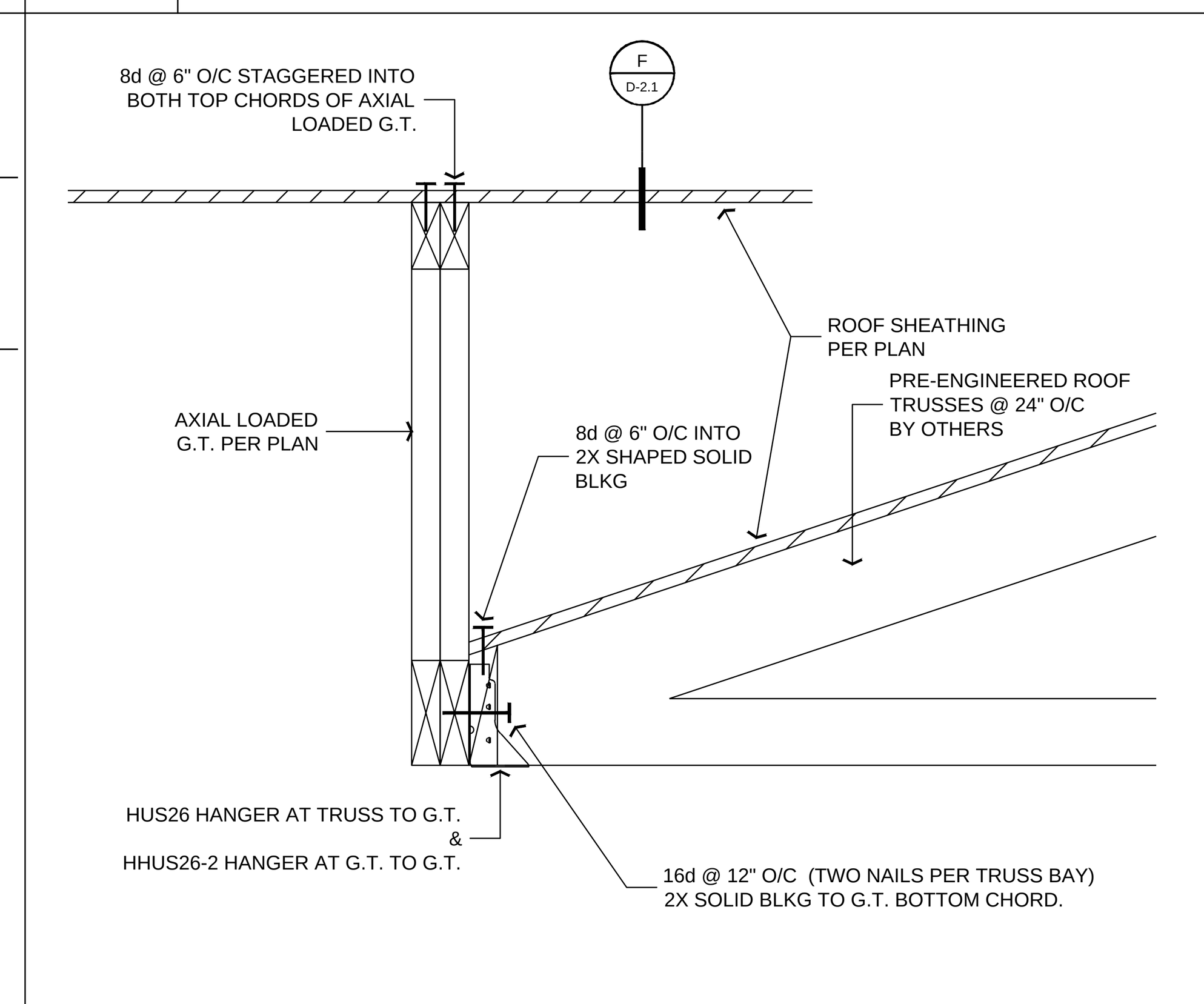
P SHEAR TRANSFER - BRG WALL TO DIAPH. TIE



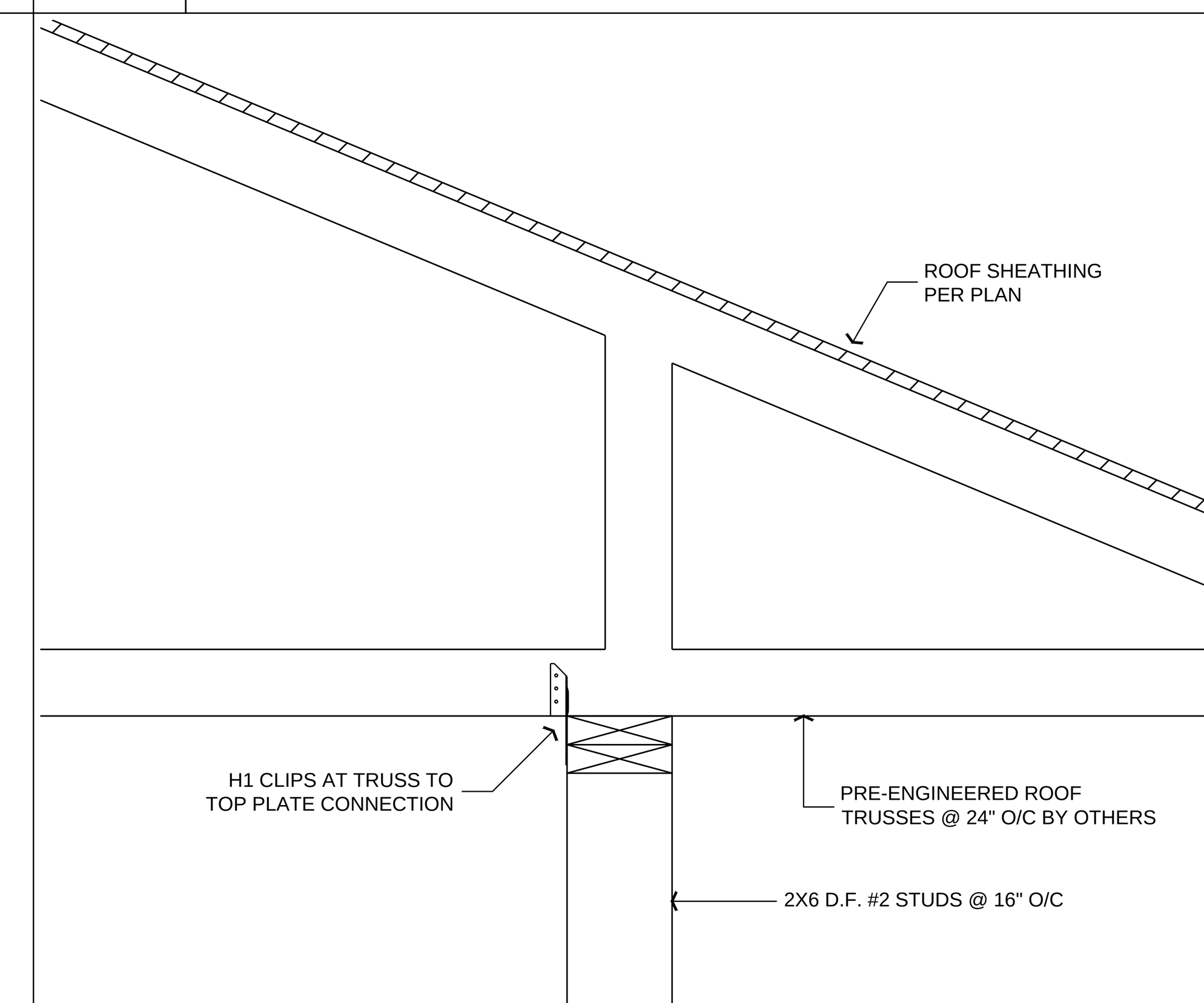
M DRAG CONNECTION



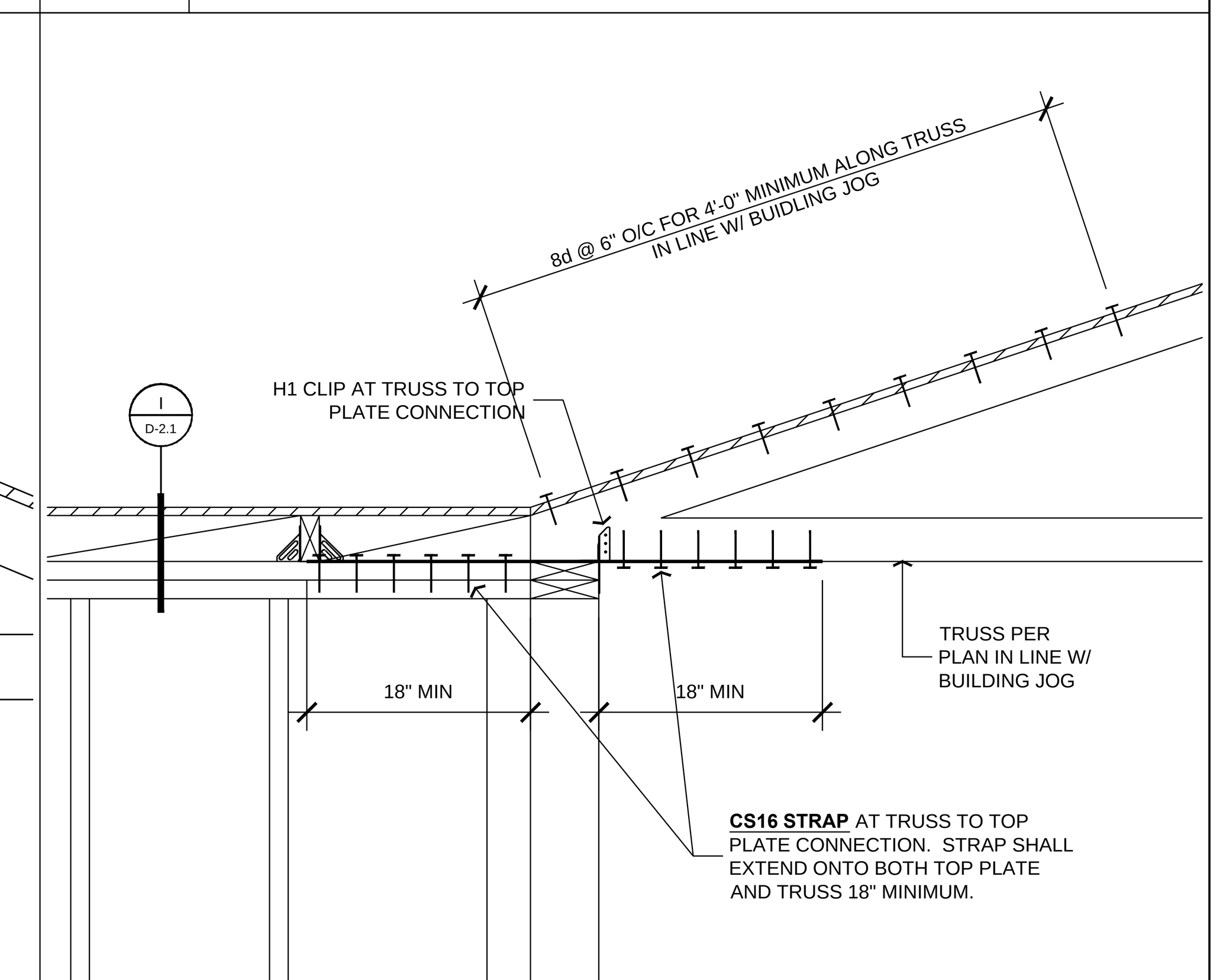
W GARAGE HEADER AT SHEARWALL CONN.



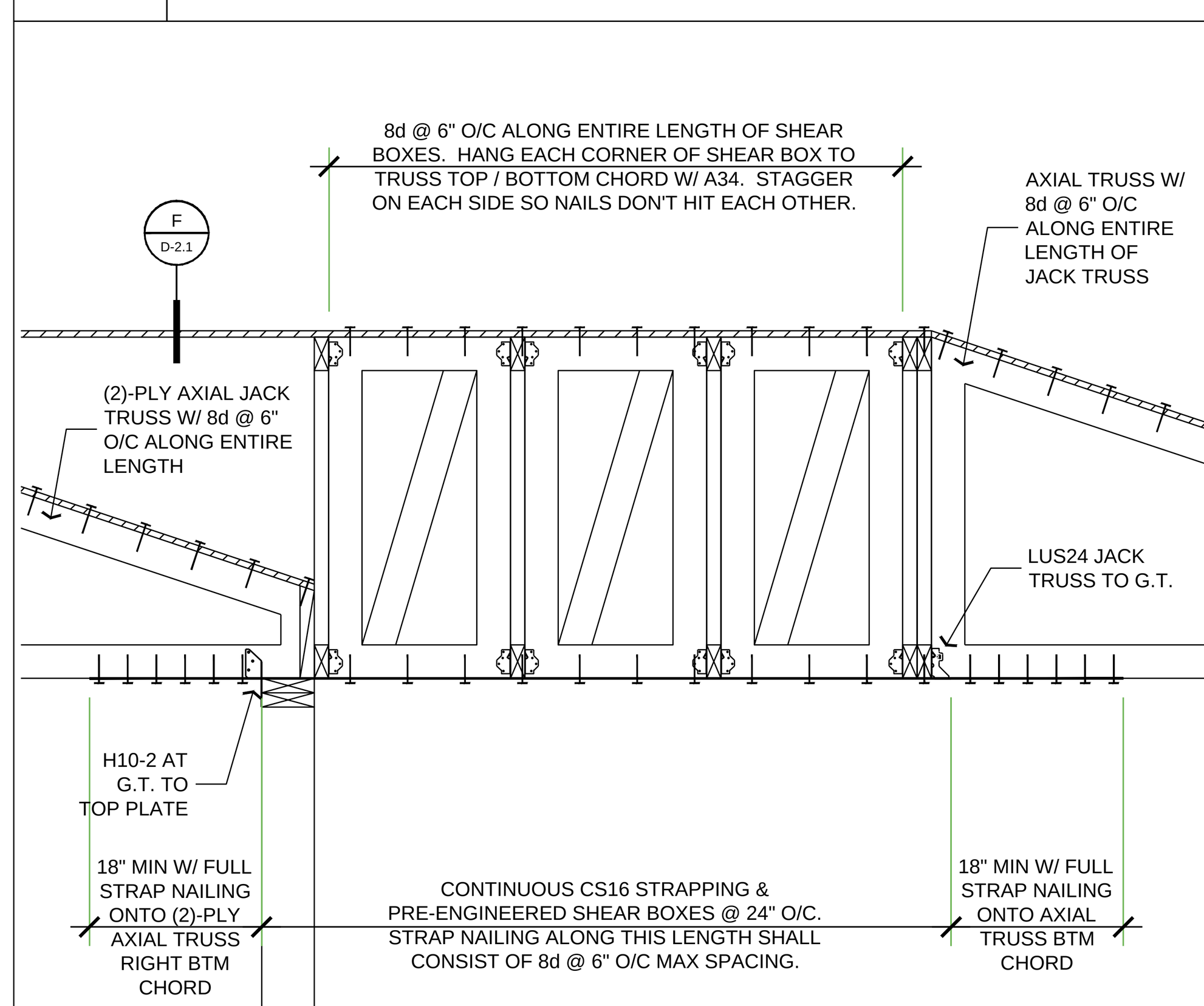
T SHEAR TRANSFER - TRUSS TO G.T.



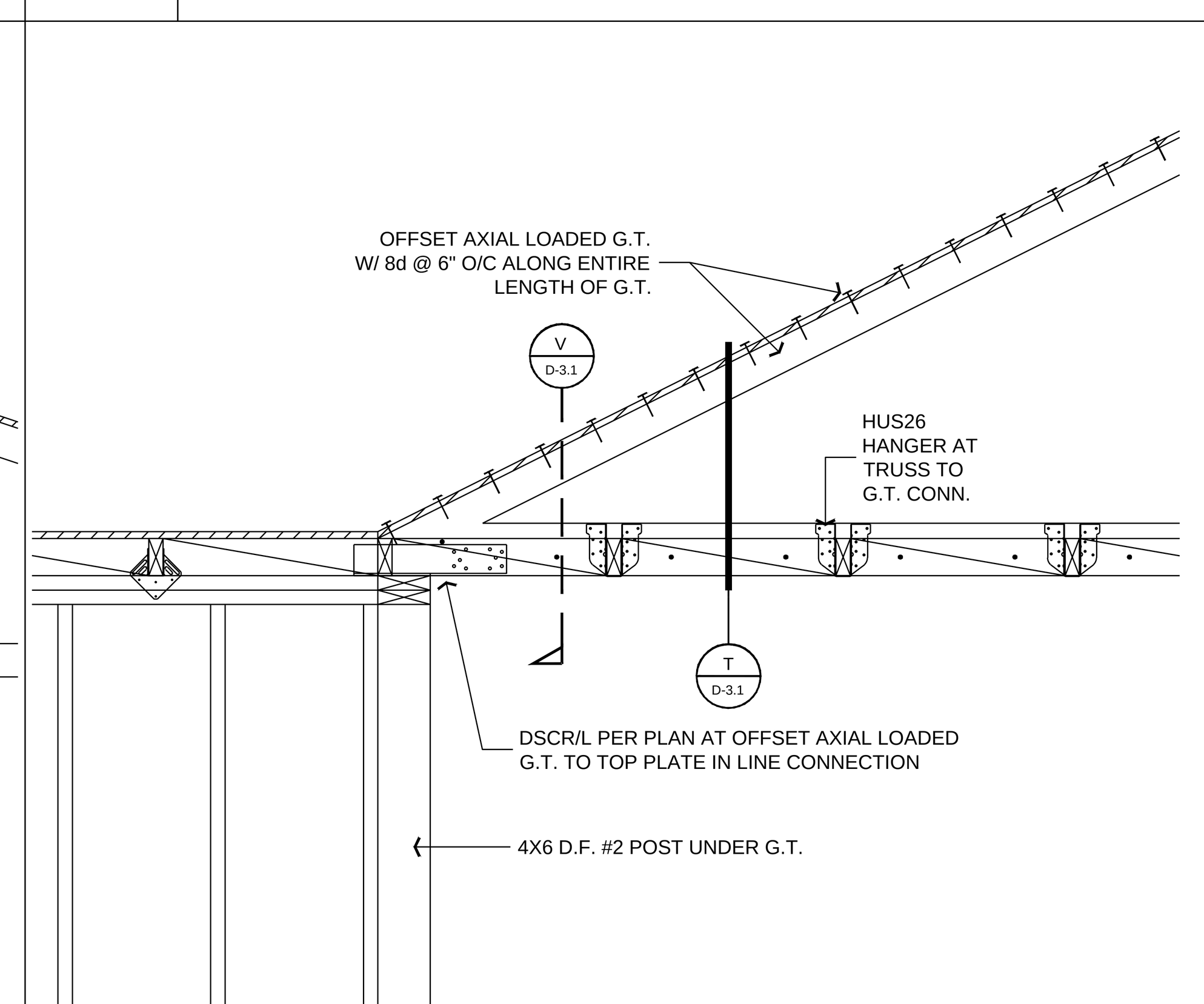
Q TRUSS TO INTERIOR BEARING WALL CONN.



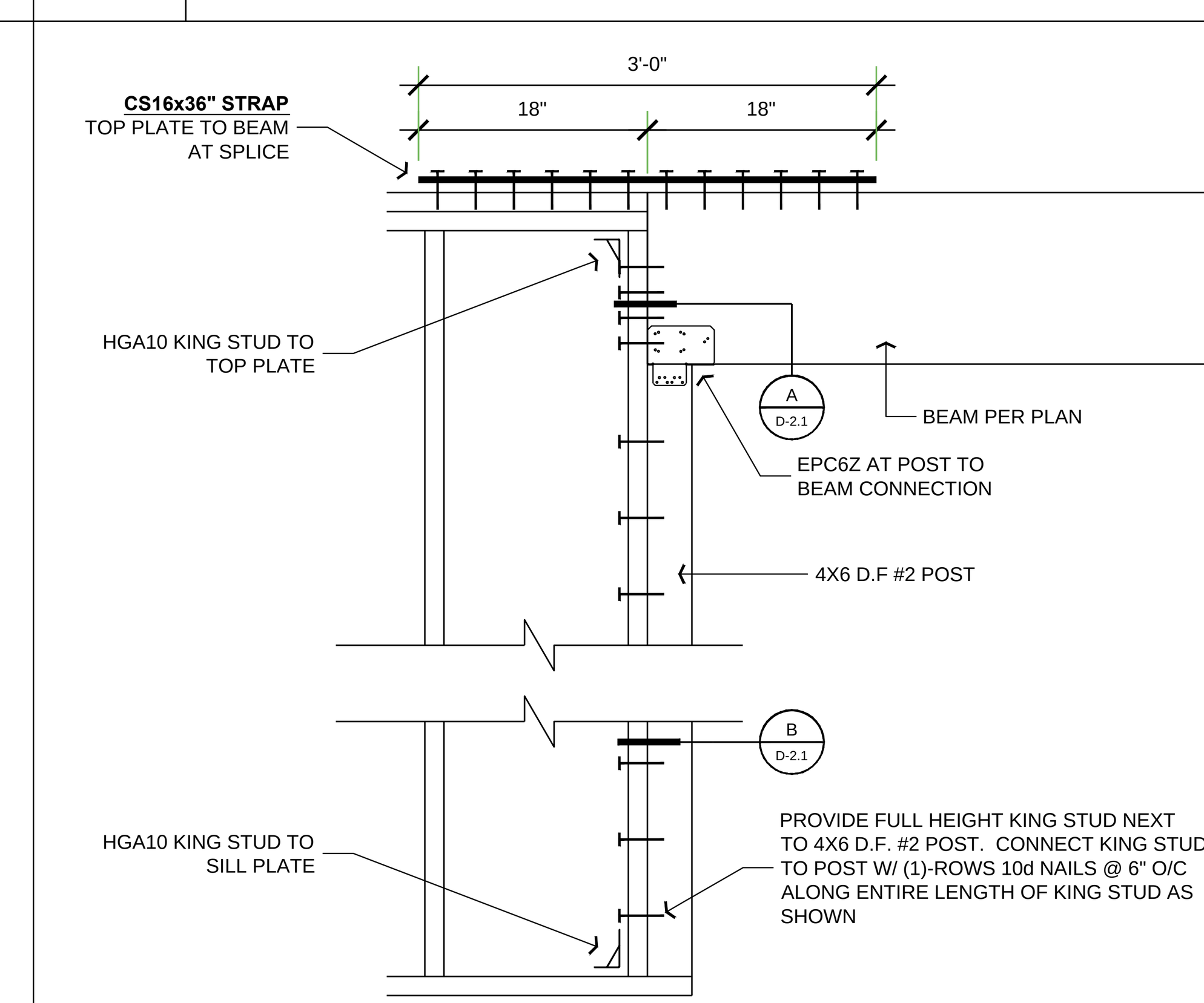
N DRAG / CHORD CONNECTION



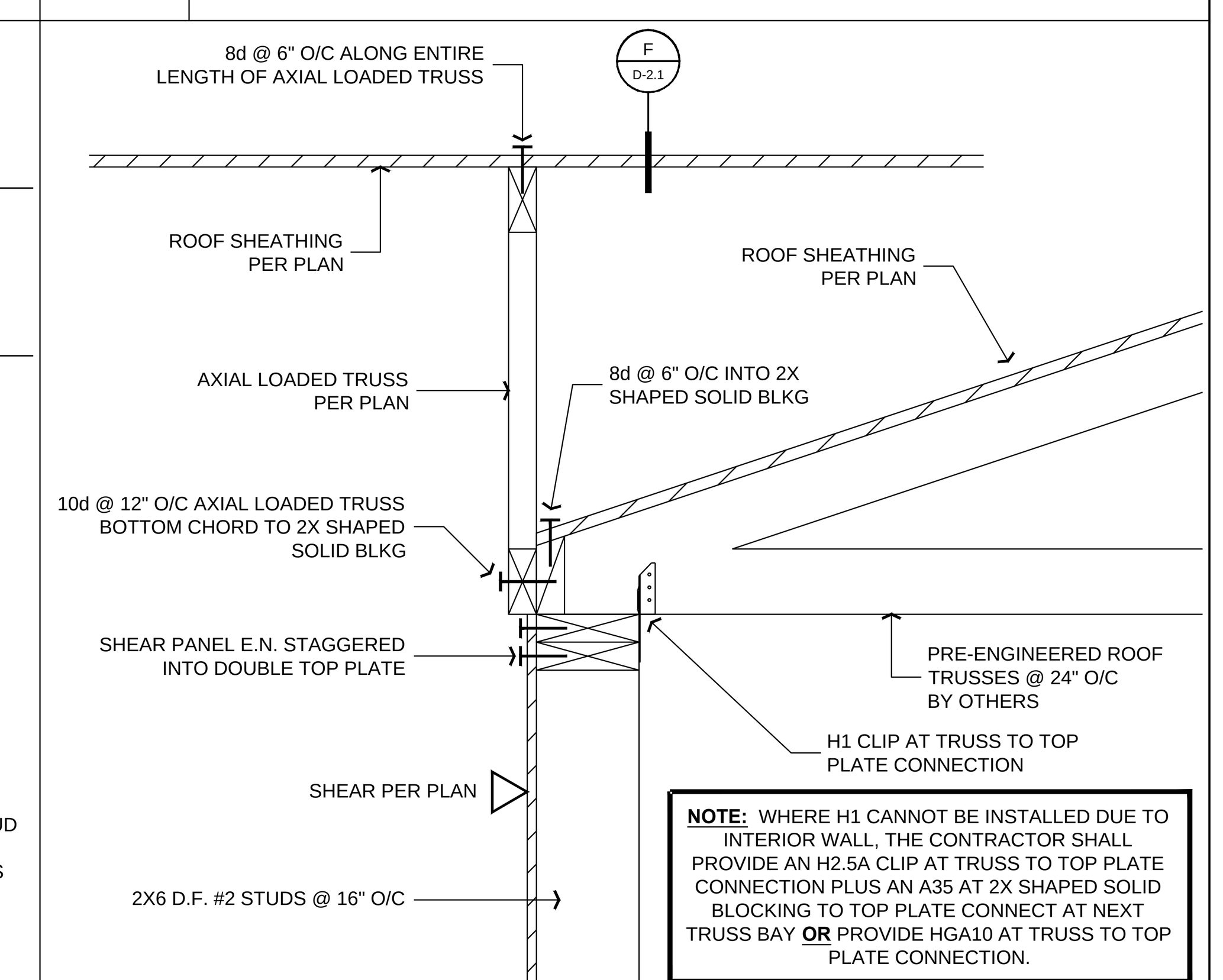
X DRAG CONNECTION



U DRAG CONNECTION - G.T. TO TOP PLATE



R TYP GARAGE HEADER CONNECTION



O SHEAR TRANSFER - LAYOUT TRANSITION

ENGINEERING
239-4151
John A. Kudla
Civil Engineering & Structural Design
R.C.E. #50652
610 10th ST. UNIT 'A' PASO ROBLES, CA.

PLAN PREPARED FOR:
KIRK & CARRIE ALLEN
LOT 106 TRACT 1990-2
PASO ROBLES, CA 93446

REVISION LOG

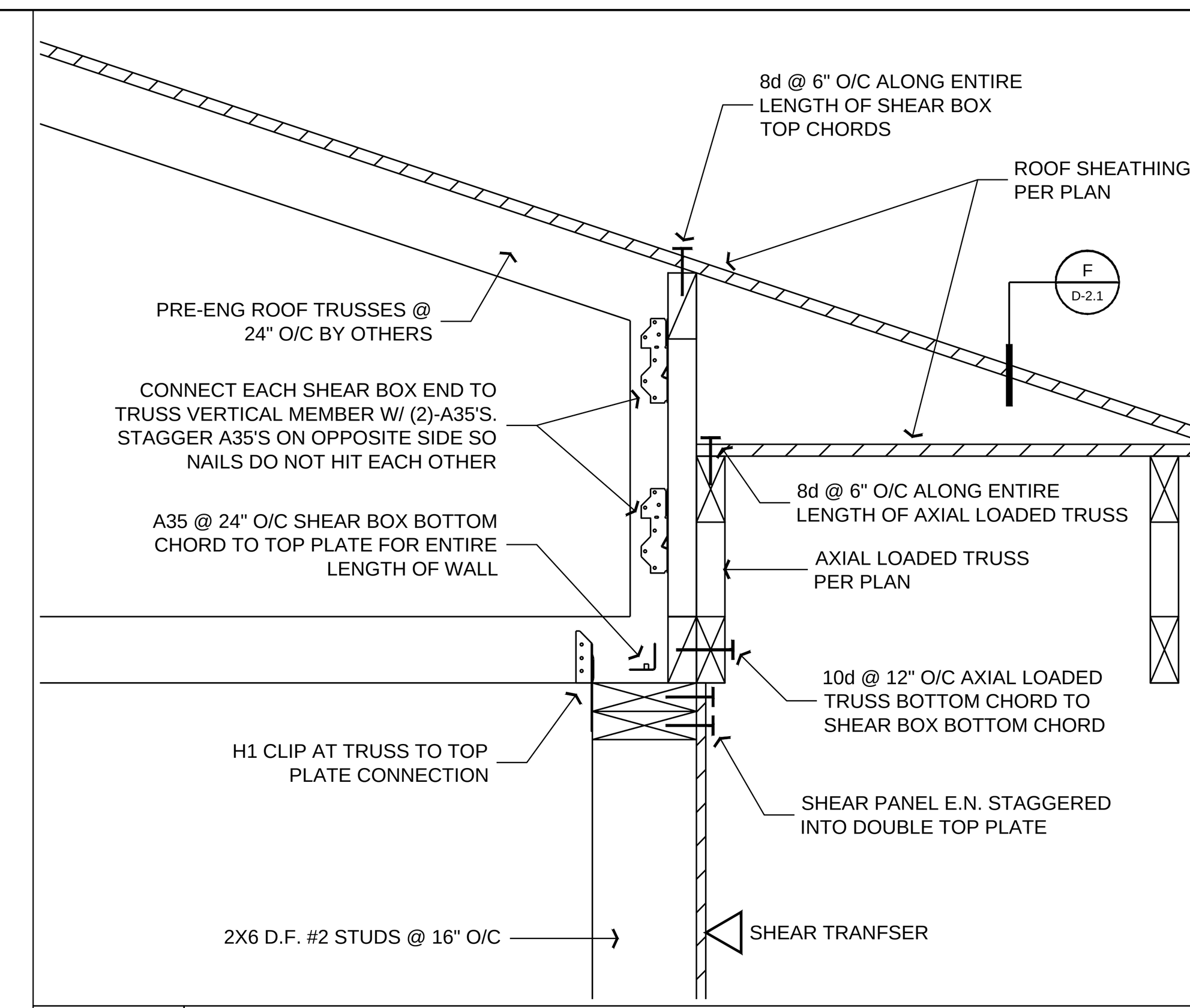
REV.	DESCRIPTION	DATE

PROJECT NO. —
FILE NAME D-3.1 STRUCTURAL DETAILS.DWG
DRAWN BY JJK
DATE 3/31/2017 8:00 AM
SHEET TITLE:

STRUCTURAL DETAILS

SHEET NUMBER:

D-3.1



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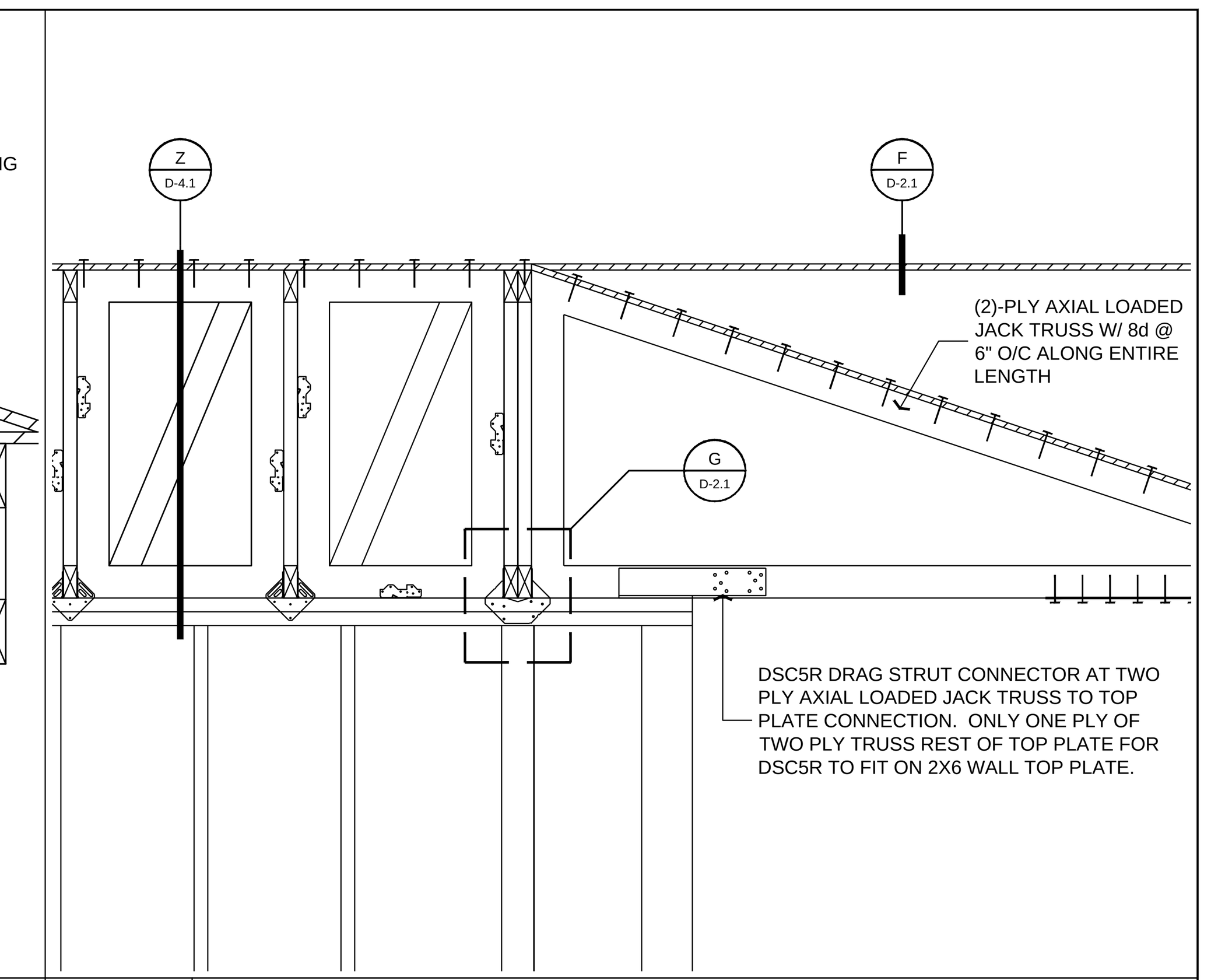
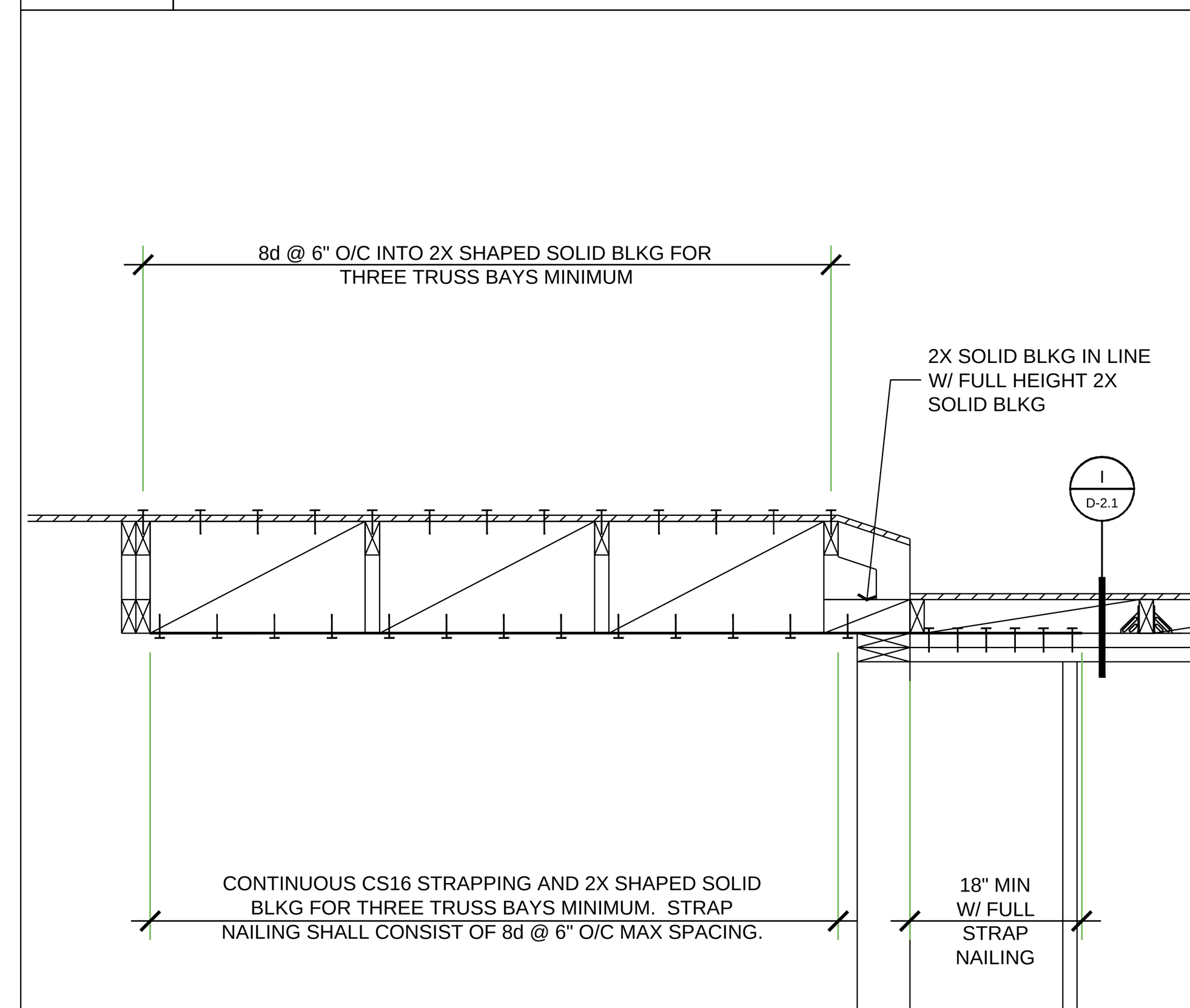
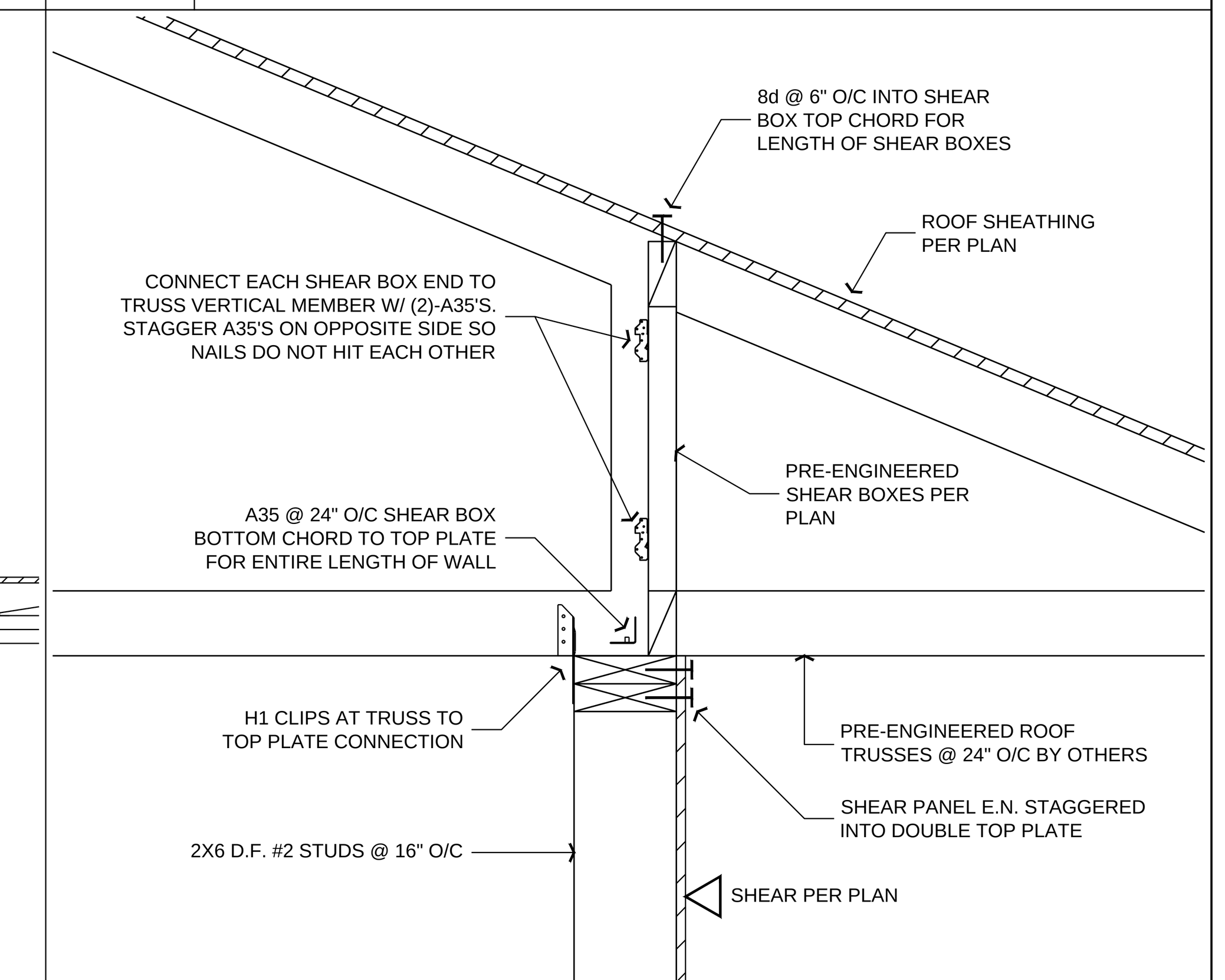


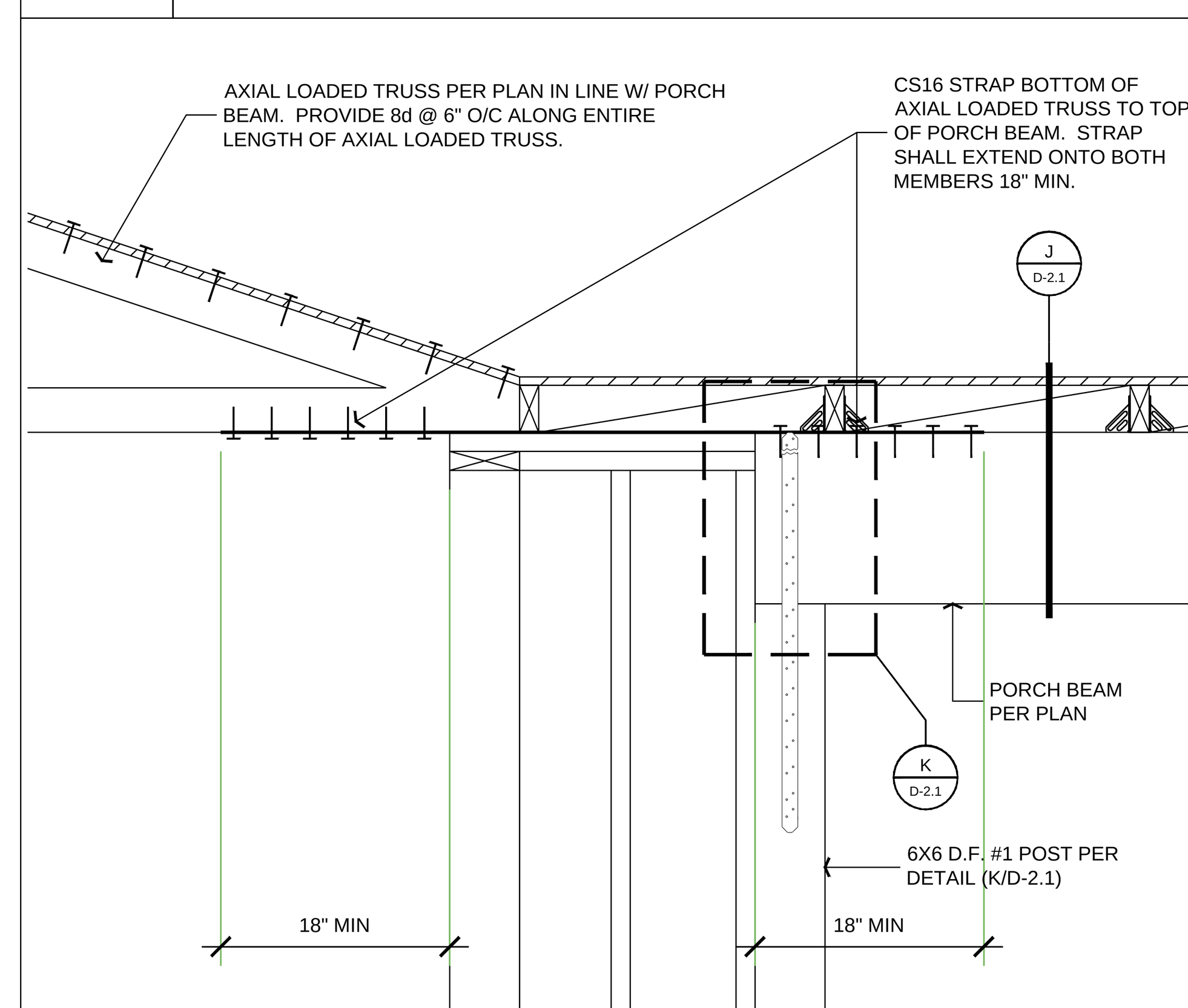
Y — DRAG CONNECTION



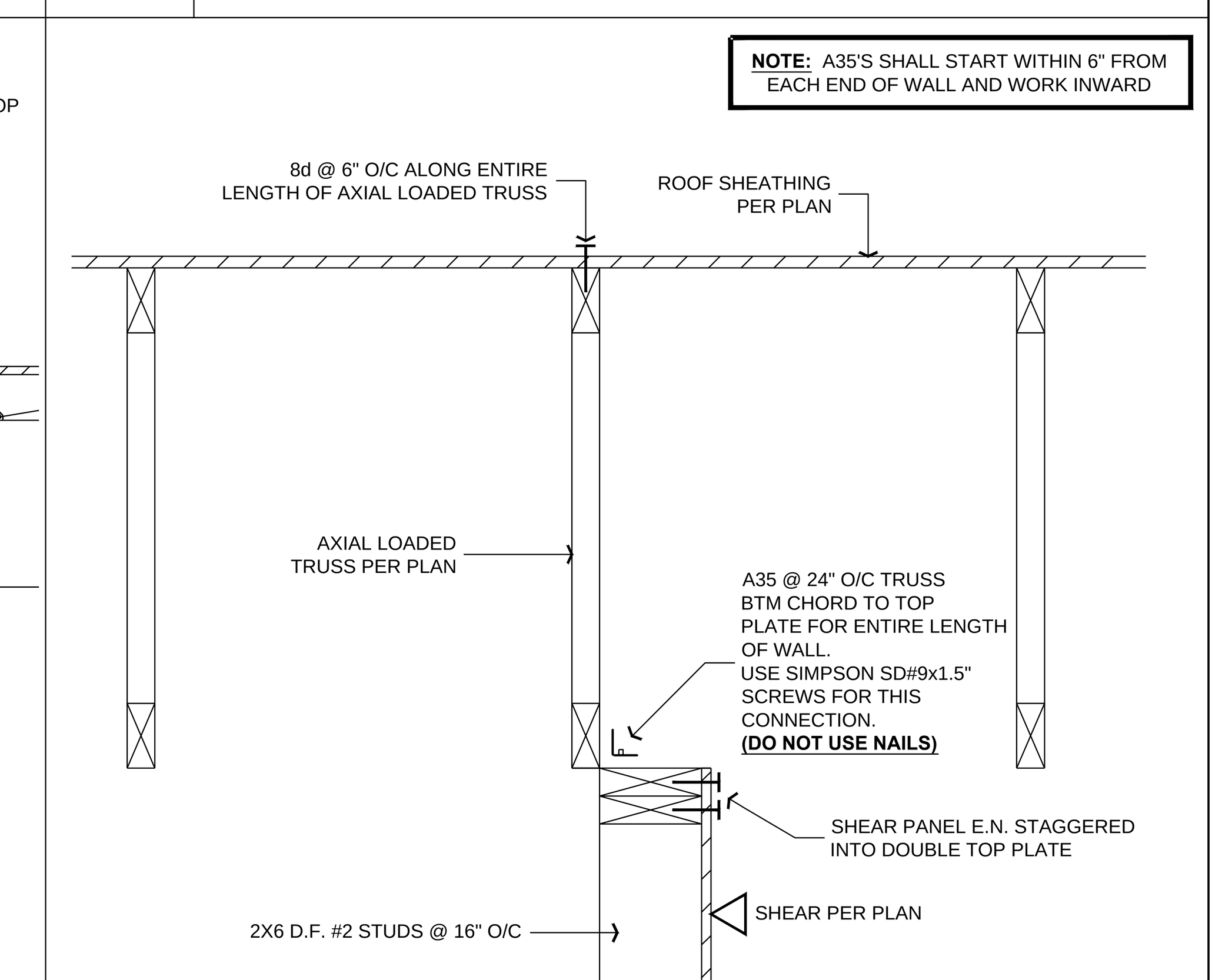
C C — DRAG CONNECTION



Z — SHEAR TRANSFER



D D — DRAG CONNECTION



A A — SHEAR TRANSFER - INTERIOR AXIAL TRUSS

JK ENGINEERING
239-4151
John A. Kudla
Civil Engineering & Structural Design
R.C.E. #50652
610 10th ST. UNIT 'A' PASO ROBLES, CA.

PLAN PREPARED FOR:
KIRK & CARRIE ALLEN
LOT 106 TRACT 1990-2
PASO ROBLES, CA 93446

REVISION LOG

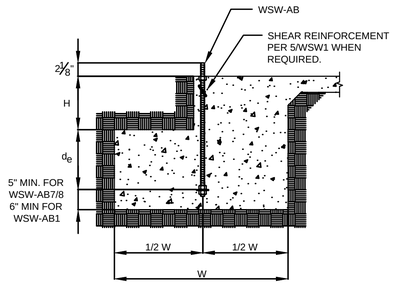
REV.	DESCRIPTION	DATE

PROJECT NO. ---
FILE NAME D-4.1 STRUCTURAL DETAILS.DWG
DRAWN BY JJK
DATE 3/31/2017 8:00 AM
SHEET TITLE:

STRUCTURAL DETAILS

SHEET NUMBER:

D-4.1

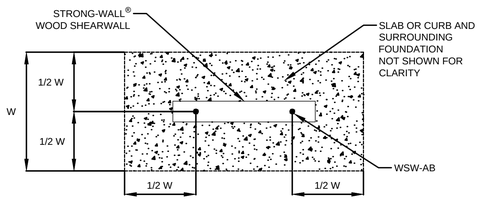


SLAB ON GRADE FOUNDATION

NOTES:
1. SEE 2/WSW1 FOR DIMENSIONS AND ADDITIONAL NOTES.
2. SEE 5/WSW1 FOR SHEAR REINFORCEMENT WHEN REQUIRED.
3. MAXIMUM H = l_e - d_e. SEE 3/WSW1 AND 4/WSW1 FOR l_e.

REGISTERED DESIGN PROFESSIONAL IS PERMITTED TO MODIFY DETAILS FOR SPECIFIC CONDITIONS.

STRONG-WALL® WSW ANCHORAGE - TYPICAL SECTIONS 1



FOUNDATION PLAN VIEW

WSW ANCHORAGE SOLUTIONS FOR 2500 PSI CONCRETE

DESIGN CRITERIA	CONCRETE CONDITION	ANCHOR STRENGTH	WSW-AB7/8 ANCHOR BOLT ASD ALLOWABLE TENSION (lb.)	WSW-AB7/8 W (in.)	WSW-AB7/8 d_e (in.)	WSW-AB1 ANCHOR BOLT ASD ALLOWABLE TENSION (lb.)	WSW-AB1 W (in.)	WSW-AB1 d_e (in.)
SEISMIC	CRACKED	STANDARD	11,900	27	9	16,100	33	11
			13,100	29	10	17,100	35	12
		HIGH STRENGTH	24,900	43	15	33,000	51	17
			27,100	46	16	35,300	54	18
	UNCRACKED	STANDARD	12,500	24	8	15,700	28	10
			13,100	25	9	17,100	30	10
		HIGH STRENGTH	25,300	38	13	32,300	44	15
			27,100	40	14	35,300	47	16
WIND	CRACKED	STANDARD	5,100	14	6	6,200	16	6
			8,700	20	7	11,400	24	8
			13,100	27	9	17,100	32	11
		HIGH STRENGTH	15,900	30	10	21,100	36	12
			18,400	33	11	27,300	42	14
			23,100	38	13	31,800	46	16
			27,100	42	14	35,300	50	17
	UNCRACKED	STANDARD	5,000	12	6	6,400	14	6
			9,300	18	6	12,500	22	8
			13,100	23	8	17,100	28	10
		HIGH STRENGTH	15,200	25	9	21,900	32	11
			19,900	30	10	26,400	36	12
			24,000	34	12	31,500	40	14
			27,100	37	13	35,300	43	15

NOTES:
1. ANCHORAGE DESIGNS CONFORM TO ACI 318-11 APPENDIX D AND ACI 318-14 WITH NO SUPPLEMENTARY REINFORCEMENT FOR CRACKED OR UNCRACKED CONCRETE AS NOTED.
2. ANCHOR STRENGTH INDICATES REQUIRED GRADE OF WSW-AB ANCHOR BOLT. STANDARD (ASTM F1554 GRADE 36) OR HIGH STRENGTH (HS) (ASTM A449).
3. SEISMIC INDICATES SEISMIC DESIGN CATEGORY C - F. DETACHED 1 AND 2 FAMILY DWELLINGS IN SDC C MAY USE WIND ANCHORAGE SOLUTIONS. SEISMIC ANCHORAGE DESIGNS CONFORM TO ACI 318-11 SECTION D.3.3.4.3 AND ACI 318-14 SECTION 17.2.3.4.3.
4. WIND INCLUDES SEISMIC DESIGN CATEGORY A AND B AND DETACHED 1 AND 2 FAMILY DWELLINGS IN SDC C.
5. FOUNDATION DIMENSIONS ARE FOR ANCHORAGE ONLY. FOUNDATION DESIGN (SIZE AND REINFORCEMENT) BY OTHERS. THE REGISTERED DESIGN PROFESSIONAL MAY SPECIFY ALTERNATE EMBEDMENT, FOOTING SIZE OR ANCHOR BOLT.
6. REFER TO 1/WSW1 FOR d_e.

STRONG-WALL® WOOD SHEARWALL TENSION ANCHORAGE SCHEDULE 2,500, 3,000 AND 4,500 PSI 2

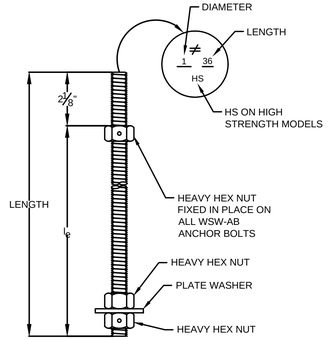
WSW ANCHORAGE SOLUTIONS FOR 3000 PSI CONCRETE

DESIGN CRITERIA	CONCRETE CONDITION	ANCHOR STRENGTH	WSW-AB7/8 ANCHOR BOLT ASD ALLOWABLE TENSION (lb.)	WSW-AB7/8 W (in.)	WSW-AB7/8 d_e (in.)	WSW-AB1 ANCHOR BOLT ASD ALLOWABLE TENSION (lb.)	WSW-AB1 W (in.)	WSW-AB1 d_e (in.)
SEISMIC	CRACKED	STANDARD	12,300	26	9	16,000	31	11
			13,100	28	10	17,100	33	11
		HIGH STRENGTH	25,200	41	14	32,700	48	16
			27,100	43	15	35,300	51	17
	UNCRACKED	STANDARD	12,000	22	8	16,300	27	9
			13,100	24	8	17,100	28	10
		HIGH STRENGTH	25,300	36	12	32,700	42	14
			27,100	38	13	35,300	44	15
WIND	CRACKED	STANDARD	5,000	13	6	5,600	14	6
			8,800	19	7	10,200	21	7
		HIGH STRENGTH	13,100	25	9	17,100	30	10
			15,700	28	10	20,100	33	11
			19,200	32	11	25,300	38	13
			23,200	36	12	32,300	44	15
			27,100	40	14	35,300	47	16
	UNCRACKED	STANDARD	5,500	12	6	6,200	13	6
			8,500	16	6	12,800	21	7
		HIGH STRENGTH	13,100	22	8	17,100	26	9
			16,600	25	9	21,800	30	10
			19,700	28	10	25,200	33	11
			24,000	32	11	31,700	38	13
			27,100	35	12	35,300	41	14

WSW ANCHORAGE SOLUTIONS FOR 4500 PSI CONCRETE

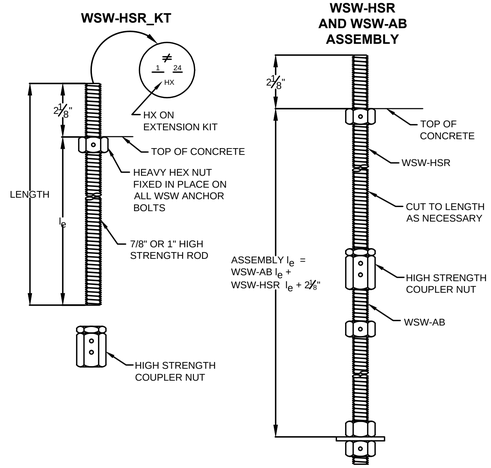
DESIGN CRITERIA	CONCRETE CONDITION	ANCHOR STRENGTH	WSW-AB7/8 ANCHOR BOLT ASD ALLOWABLE TENSION (lb.)	WSW-AB7/8 W (in.)	WSW-AB7/8 d_e (in.)	WSW-AB1 ANCHOR BOLT ASD ALLOWABLE TENSION (lb.)	WSW-AB1 W (in.)	WSW-AB1 d_e (in.)
SEISMIC	CRACKED	STANDARD	12,600	23	8	16,000	27	9
			13,100	24	8	17,100	29	10
		HIGH STRENGTH	24,800	36	12	32,100	42	14
			27,100	38	13	35,300	45	15
	UNCRACKED	STANDARD	12,700	20	7	15,700	23	8
			13,100	21	7	17,100	25	9
		HIGH STRENGTH	24,600	31	11	32,500	37	13
			27,100	34	12	35,300	39	13
WIND	CRACKED	STANDARD	5,400	12	6	6,800	14	6
			8,300	16	6	11,600	20	7
		HIGH STRENGTH	13,100	22	8	17,100	26	9
			15,300	24	8	21,400	30	10
			19,300	28	10	25,800	34	12
			23,600	32	11	31,000	38	13
			27,100	36	12	35,300	42	14
	UNCRACKED	STANDARD	6,800	12	6	6,800	12	6
			9,400	15	6	12,400	18	6
		HIGH STRENGTH	13,100	19	7	17,100	23	8
			16,800	22	8	21,600	26	9
			20,300	25	9	26,700	30	10
			24,100	28	10	32,200	34	12
			27,100	31	11	35,300	36	12

WSW ANCHOR BOLTS 3



WSW PANEL MODEL	MODEL NO.	DIAMETER	LENGTH	l_e
WSW12 AND WSW18	WSW-AB7/8x24	7/8"	24"	20"
	WSW-AB7/8x24HS	7/8"	24"	20"
	WSW-AB7/8x30	7/8"	30"	26"
	WSW-AB7/8x30HS	7/8"	30"	26"
	WSW-AB7/8x36HS	7/8"	36"	32"
WSW24	WSW-AB1x24	1"	24"	20"
	WSW-AB1x24HS	1"	24"	20"
	WSW-AB1x30	1"	30"	26"
	WSW-AB1x30HS	1"	30"	26"
	WSW-AB1x36HS	1"	36"	32"

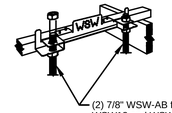
WSW ANCHOR BOLT EXTENSION 4



WSW PANEL MODEL	MODEL NO.	DIAMETER	LENGTH	l_e
WSW12 AND WSW18	WSW-HSR7/8x24KT	7/8"	24"	22"
	WSW-HSR7/8x36KT	7/8"	36"	34"
WSW24	WSW-HSR1x24KT	1"	24"	22"
	WSW-HSR1x36KT	1"	36"	34"

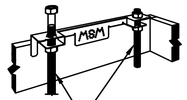
WSW ANCHOR BOLT TEMPLATES 6

WSW-RT INTERIOR INSTALLATION

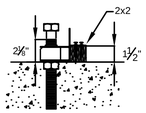


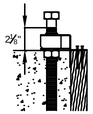
(2) 7/8" WSW-AB for WSW12 and WSW18
(2) 1" WSW-AB for WSW24

WSW-RT EXTERIOR INSTALLATION

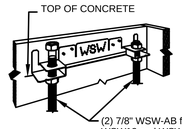


(2) 7/8" WSW-AB for WSW12 and WSW18
(2) 1" WSW-AB for WSW24



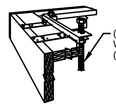


WSW-RTPF PANEL FORM INSTALLATION



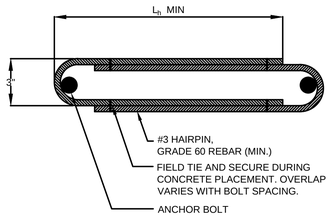
(2) 7/8" WSW-AB for WSW12 and WSW18
(2) 1" WSW-AB for WSW24

WSW-RTBL BRICK LEDGE INSTALLATION

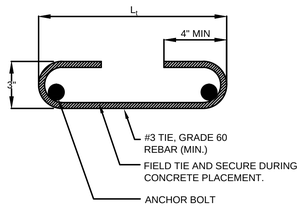


(2) 7/8" WSW-AB for WSW12 and WSW18
(2) 1" WSW-AB for WSW24

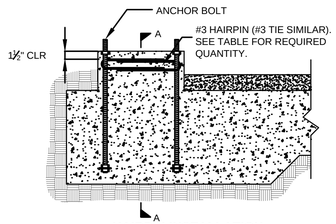
WSW ANCHOR BOLT EXTENSION 5



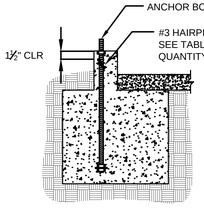
HAIRPIN SHEAR REINFORCEMENT



TIE SHEAR REINFORCEMENT



HAIRPIN INSTALLATION
(GARAGE CURB SHOWN. OTHER FOOTING TYPES SIMILAR.)



SECTION A-A

REGISTERED DESIGN PROFESSIONAL IS PERMITTED TO MODIFY DETAILS FOR SPECIFIC CONDITIONS.

STRONG-WALL® WOOD SHEARWALL SHEAR ANCHORAGE

MODEL	L_t OR L_h (in.)	SEISMIC [3] SHEAR REINFORCEMENT	SEISMIC [3] MINIMUM CURB/ STEMWALL WIDTH (in.)	WIND [4] SHEAR REINFORCEMENT	WIND [4] MINIMUM CURB/ STEMWALL WIDTH (in.)	WIND [4] ASD ALLOWABLE SHEAR LOAD, V (lb.) [6] UNCRACKED	WIND [4] ASD ALLOWABLE SHEAR LOAD, V (lb.) [6] CRACKED
WSW12	10¼	(1) #3 HAIRPIN	8[5]	SEE NOTE 6	6	1,035	740
WSW18	15	(1) #3 HAIRPIN	8[5]	(1) #3 HAIRPIN	6	HAIRPIN REINFORCEMENT ACHIEVES MAXIMUM ALLOWABLE SHEAR LOAD OF THE WSW	
WSW24	19	(2) #3 HAIRPINS	8[5]	(1) #3 HAIRPIN	6		

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. SEISMIC INDICATES SEISMIC DESIGN CATEGORY C THROUGH F. DETACHED 1 AND 2 FAMILY DWELLINGS IN SDC C MAY USE WIND ANCHORAGE SOLUTIONS.
4. WIND INCLUDES SEISMIC DESIGN CATEGORY A AND B AND DETACHED 1 AND 2 FAMILY DWELLINGS IN SDC C.
5. WHERE NOTED, MINIMUM CURB/STEMWALL WIDTH IS 6 INCHES WHEN STANDARD STRENGTH ANCHOR BOLT IS USED.
6. USE (1) #3 TIE FOR WSW12 WHEN PANEL DESIGN SHEAR FORCE EXCEEDS TABULATED ANCHORAGE ALLOWABLE SHEAR LOAD.
7. #4 GRADE 40 SHEAR REINFORCEMENT MAY BE SUBSTITUTED FOR WSW SHEAR ANCHORAGE SOLUTIONS.

STRONG-WALL® WSW SHEAR ANCHORAGE SCHEDULE AND DETAILS 5

REVISIONS	DATE	NO.
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SIMPSON STRONG-TIE COMPANY, INC.
HOME OFFICE: 5956 W. LAS POSITAS BLVD.
PLEASANTON, CA 94588
TEL: (800) 999-5099

SIMPSON Strong-Tie® THERE IS NO EQUAL

STRONG-WALL® WSW
ANCHORAGE DETAILS
ENGINEERED DESIGNS

SIMPSON Strong-Tie® THERE IS NO EQUAL

NAME	
DATE	07-01-2016
SCALE	N.T.S.
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OF	SHEETS
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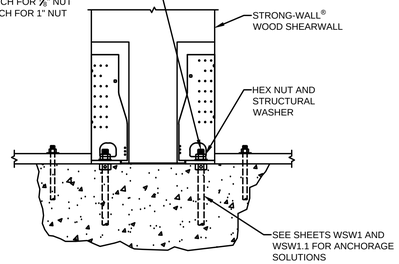
STRONG-WALL® WOOD SHEARWALL MODELS

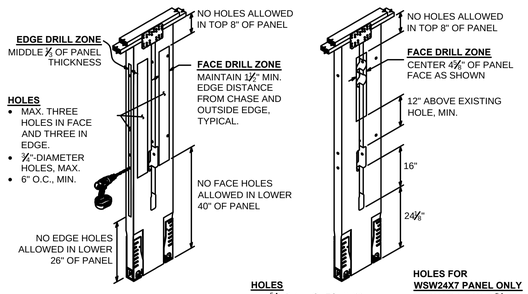
MODEL NO.	W (in.)	H (in.)	ANCHOR BOLTS		TOTAL WALL WEIGHT (lb.)
			QUANTITY	DIA. (in.)	
WSW12x7	12	78	2	7/8	100
WSW18x7	18	78	2	7/8	145
WSW12x7.5	12	85 1/2	2	7/8	110
WSW18x7.5	18	85 1/2	2	7/8	155
WSW12x8	12	93 1/4	2	7/8	115
WSW18x8	18	93 1/4	2	7/8	165
WSW24x8	24	93 1/4	2	1	225
WSW12x9	12	105 1/4	2	7/8	130
WSW18x9	18	105 1/4	2	7/8	185
WSW24x9	24	105 1/4	2	1	245
WSW12x10	12	117 1/4	2	7/8	140
WSW18x10	18	117 1/4	2	7/8	205
WSW24x10	24	117 1/4	2	1	270
WSW12x11	12	129 1/4	2	7/8	150
WSW18x11	18	129 1/4	2	7/8	220
WSW24x11	24	129 1/4	2	1	295
WSW12x12	12	141 1/4	2	7/8	165
WSW18x12	18	141 1/4	2	7/8	240
WSW24x12	24	141 1/4	2	1	320
WSW18x13	18	153 1/4	2	7/8	255
WSW24x13	24	153 1/4	2	1	345
WSW24x14	24	168	2	1	375
WSW24x16	24	192	2	1	425
WSW18x20	18	240	2	7/8	385
WSW24x20	24	240	2	1	520

NOTES:
1. FOR HEIGHTS NOT LISTED, ORDER THE NEXT TALLEST PANEL AND TRIM TO FIT. MINIMUM TRIMMED HEIGHT FOR ALL PANELS IS 74½".
2. ALL PANELS COME WITH TWO PRE-ATTACHED HOLDOWNS, TWO STANDARD HEX NUTS, TWO STRUCTURAL WASHERS, TWO WSW-TOW PLATES AND INSTALLATION INSTRUCTIONS.
3. ALL PANELS ARE 3½" THICK.

REGISTERED DESIGN PROFESSIONAL IS PERMITTED TO MODIFY DETAILS FOR SPECIFIC CONDITIONS.

PLACE STRONG-WALL® WOOD SHEARWALL OVER THE ANCHOR BOLTS AND SECURE WITH WASHER AND HEX NUTS (PROVIDED). SNUG TIGHT FIT REQUIRED; DO NOT USE AN IMPACT WRENCH.
- USE 1 7/16" WRENCH FOR 7/8" NUT
- USE 1½" WRENCH FOR 1" NUT





ALLOWABLE SMALL HOLES
FACE AND EDGE DRILL ZONES

ALLOWABLE LARGE HOLES
IN ADDITION TO ALLOWABLE SMALL HOLES

1. STRONG-WALL WOOD SHEARWALL IS MANUFACTURED AND TRADEMARKED BY "SIMPSON STRONG-TIE COMPANY INC."HOME OFFICE: 5956 W. LAS POSITAS BLVD., PLEASANTON, CA 94588 TEL: (800) 999-5099, FAX: (925) 847-1597. "SIMPSON STRONG-TIE COMPANY INC." IS AN ISO 9001-2008 REGISTERED COMPANY.
2. USE OF THIS PRODUCT IS SUBJECT TO THE APPROVAL OF THE LOCAL BUILDING DEPARTMENT.
3. THIS PRODUCT IS PART OF THE OVERALL LATERAL FORCE RESISTING SYSTEM OF THE STRUCTURE. DESIGN OF THE BUILDING'S LATERAL FORCE RESISTING SYSTEM, INCLUDING THE LOAD PATH TO TRANSFER LATERAL FORCES FROM THE STRUCTURE TO THE GROUND, IS THE RESPONSIBILITY OF THE DESIGNER.
4. ENGINEER OF RECORD IS PERMITTED TO MODIFY DETAILS FOR SPECIFIC CONDITIONS.
5. THE CONTRACTOR SHALL VERIFY ALL DIMENSIONS, CONDITIONS, ELEVATIONS, ETC. PRIOR TO INSTALLATION OF ANY COMPONENTS FOR THE STRONG-WALL SB SYSTEM. IF ANY DISCREPANCIES ARE FOUND, THEY SHALL BE BROUGHT TO THE ATTENTION OF THE DESIGNER FOR CLARIFICATION PRIOR TO CONSTRUCTION.
6. INSTALLATION OF PRODUCT SHALL BE DONE IN CONFORMANCE TO THESE DRAWINGS. THE PERFORMANCE OF MODIFIED PRODUCTS OR ALTERED INSTALLATION PROCEDURES ARE THE SOLE RESPONSIBILITY OF THE DESIGNER.
7. SIMPSON STRONG-TIE COMPANY INC. RESERVES THE RIGHT TO CHANGE SPECIFICATIONS, DESIGNS, AND MODELS WITHOUT NOTICE OR LIABILITY FOR SUCH CHANGES.
8. ALL HARDWARE CALLED OUT IS SIMPSON STRONG-TIE.
9. SEE ICC-ES ESR-2652 OR CITY OF LOS ANGELES RR25730 AS APPLICABLE FOR ADDITIONAL INFORMATION.

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STRONG-WALL WSW
FRAMING DETAILS
ENGINEERED DESIGNS

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NAME	
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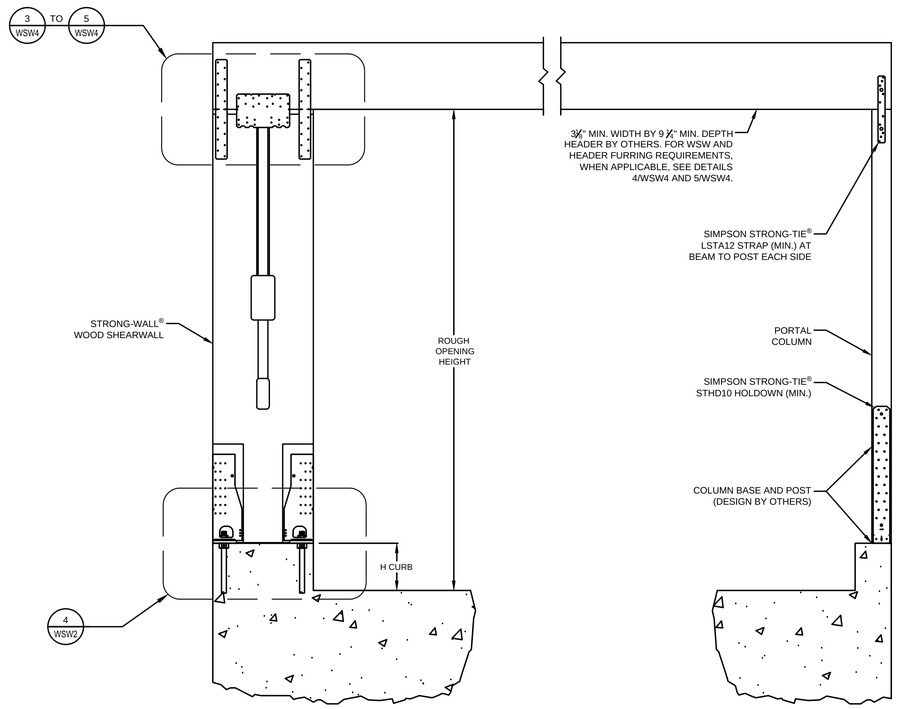
SHEET	WSW2
OF	SHEETS
JOB NO.	



GARAGE HEADER ROUGH OPENING HEIGHT		
MODEL NO.	H CURB	ROUGH OPENING HEIGHT
WSW12x7	5½"	6'-11½"
WSW18x7	6"	7'-0"
WSW24x7		
WSW12x7.5	0"	7'-1½"
WSW18x7.5		
WSW24x7.5		
WSW12x8	5½"	8'-2½"
WSW18x8	6"	8'-3½"
WSW24x8		

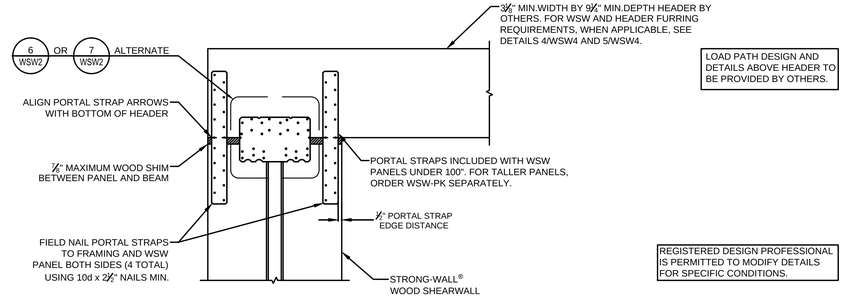
NOTES:
1. IF REQUIRED ROUGH OPENING HEIGHT EXCEEDS TABLE VALUE, SPECIFY NEXT TALLER PANEL AND TRIM AS NECESSARY. THE STRONG-WALL® WOOD SHEARWALL MAY BE TRIMMED TO A MINIMUM HEIGHT OF 74½".
2. FURRING DOWN GARAGE HEADER MAY BE REQUIRED FOR CORRECT ROUGH OPENING HEIGHT.

REGISTERED DESIGN PROFESSIONAL IS PERMITTED TO MODIFY DETAILS FOR SPECIFIC CONDITIONS.

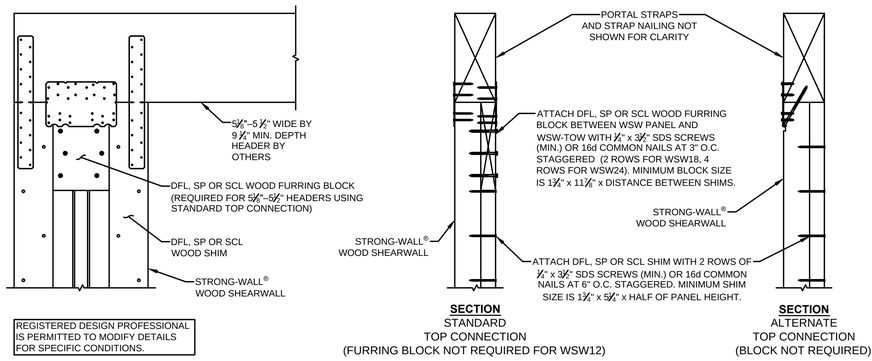
WSW DESIGNED TO PROVIDE ½" GAP BETWEEN LSL AT BASE OF WSW AND CONCRETE. ENSURE CONCRETE IS LEVEL AND SMOOTH BENEATH PANEL. GRIND OR FILL AS NECESSARY.

STRONG-WALL WOOD SHEARWALL SINGLE PORTAL ASSEMBLY | 1

STRONG-WALL WOOD SHEARWALL DOUBLE PORTAL ASSEMBLY | 2



PORTAL TOP CONNECTION | 3



FURRING FOR 5 1/8" TO 5 1/2" HEADER | 4

FURRING FOR 3 1/8" HEADER | 5

NOTES | 6

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4. ENGINEER OF RECORD IS PERMITTED TO MODIFY DETAILS FOR SPECIFIC CONDITIONS.
5. THE CONTRACTOR SHALL VERIFY ALL DIMENSIONS, CONDITIONS, ELEVATIONS, ETC. PRIOR TO INSTALLATION OF ANY COMPONENTS FOR THE STRONG-WALL SB SYSTEM. IF ANY DISCREPANCIES ARE FOUND, THEY SHALL BE BROUGHT TO THE ATTENTION OF THE DESIGNER FOR CLARIFICATION PRIOR TO CONSTRUCTION.
6. INSTALLATION OF PRODUCT SHALL BE DONE IN CONFORMANCE TO THESE DRAWINGS. THE PERFORMANCE OF MODIFIED PRODUCTS OR ALTERED INSTALLATION PROCEDURES ARE THE SOLE RESPONSIBILITY OF THE DESIGNER.
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STRONG-WALL® WSW
PORTAL SYSTEM
FRAMING DETAILS
ENGINEERED DESIGNS

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JOB NO.	

GENERAL NOTES

1. THE FOLLOWING NOTES, DETAILS, SCHEDULES & SPECIFICATIONS SHALL APPLY TO ALL PHASES OF THIS PROJECT UNLESSSS SPECIFICALLY OTHERWISE NOTED (UON). NOTES AND DETAILS ON THE STRUCTURAL PLANS SHALL TAKE PRECEDENCE OVER GENERAL NOTES AND TYPICAL DETAILS. WHERE NO DETAILS ARE GIVEN, CONSTRUCTION SHALL BE AS SHOWN FOR SIMILAR WORK
2. ALL DRAWINGS ARE CONSIDERED TO BE PART OF THE CONTRACT DOCUMENTS. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE REVIEW AND COORDINATION OF ALL DRAWINGS AND SPECIFICATIONS PRIOR TO THE START OF CONSTRUCTION. ANY DISCREPANCIES SHALL BE BROUGHT TO THE ATTENTION OF THE ENGINEER PRIOR TO THE START OF CONSTRUCTION SO THAT A CLARIFICATION CAN BE ISSUED. ANY WORK PERFORMED IN CONFLICT WITH THE CONTRACT DOCUMENTS OR ANY APPLICABLE CODE REQUIREMENTS SHALL BE CORRECTED BY THE CONTRACTOR AT NO EXPENSE TO THE OWNER OR ENGINEER.
3. REFER TO THE ARCHITECTURAL PLANS FOR THE FOLLOWING:
   - 3.1. DIMENSIONS
   - 3.1. SIZE AND LOCATION OF ALL INTERIOR AND EXTERIOR WALL LOCATIONS.
   - 3.2. SIZE AND LOCATION OF ALL FLOOR, ROOF AND WALL OPENINGS
   - 3.3. SIZE AND LOCATION OF ALL DRAINS, SLOPES, DEPRESSIONS, STEPS, ETC.
   - 3.4. SPECIFICATION OF ALL FINISHES & WATERPROOFING
   - 3.5. ALL OTHER NON-STRUCTURAL ELEMENTS
4. REFER TO THE MECHANICAL, ELECTRICAL AND PLUMBING PLANS FOR THE FOLLOWING:
   - 4.1. SIZE AND LOCATION OF ALL EQUIPMENT
   - 4.2. PIPE RUNS, SLEEVES, HANGERS AND TRENCHES
   - 4.3. ALL OTHER MECHANICAL, ELECTRICAL OR PLUMBING RELATED ELEMENTS
5. DO NOT SCALE STRUCTURAL PLANS. CONTRACTOR SHALL USE ALL WRITTEN DIMENSIONS ON ARCHITECTURAL PLANS.
6. CONSTRUCTION MATERIALS SHALL BE UNIFORMLY SPREAD OUT IF PLACED ON FLOOR OR ROOF SO AS TO NOT OVERLOAD THE FRAMING. LOAD SHALL NOT EXCEED THE DESIGN LIVE LOAD PER SQUARE FOOT. IT IS THE CONTRACTOR'S RESPONSIBILITY TO PROVIDE ADEQUATE SHORING AND/OR BRACING AS REQUIRED.
7. SPECIFICATIONS AND DETAILING OF ALL WATERPROOFING AND DRAINAGE ITEMS, WHILE SOMETIMES SHOWN ON THE STRUCTURAL PLANS FOR GENERAL INFORMATION PURPOSES ONLY, ARE SOLELY THE DESIGN RESPONSIBILITY OF OTHERS.
8. THE ENGINEER WILL NOT BE RESPONSIBLE FOR AND WILL NOT HAVE CONTROL OR CHARGE OF CONSTRUCTION MEANS, METHODS, TECHNIQUES, SEQUENCES OR PROCEDURES, OR FOR SAFETY PRECAUTIONS AND PROGRAMS IN CONNECTION WITH THE CONSTRUCTION DELINEATED BY THESE PLANS. IT SHOULD BE UNDERSTOOD THAT THE CONTRACTOR OR HIS/HER AGENT(S) SHALL SUPERVISE AND DIRECT ALL WORK AND SHALL BE SOLELY AND COMPLETELY RESPONSIBLE FOR ALL CONSTRUCTION MEANS, METHODS, TECHNIQUES, SEQUENCES, PROCEDURES AND CONDITIONS ON THE JOB SITE, INCLUDING SAFETY OF ALL PERSONS AND PROPERTY DURING THE ENTIRE PERIOD OF CONSTRUCTION. PERIODIC OBSERVATIONS BY THE ENGINEER, HIS STAFF OR REPRESENTATIVES ARE NOT INTENDED TO INCLUDE VERIFICATION OF DIMENSIONS OR REVIEW THE ADEQUACY OF THE CONTRACTOR'S SAFETY MEASURES ON OR NEAR THE CONSTRUCTION SITE.
9. MODIFICATIONS OF THE PLANS, NOTES, DETAILS AND SPECIFICATIONS SHALL NOT BE PERMITTED WITHOUT PRIOR APPROVAL FROM THE ENGINEER.
10. ALL WORKMANSHIP SHALL CONFORM TO THE BEST PRACTICE PREVAILING IN THE VARIOUS TRADES PERFORMING THE WORK. THE CONTRACTOR SHALL BE RESPONSIBLE FOR COORDINATING THE WORK OF ALL TRADES.
11. IT IS THE CONTRACTOR'S RESPONSIBILITY TO ENSURE THAT ONLY APPROVED STRUCTURAL PLANS ARE USED DURING THE COURSE OF CONSTRUCTION. THE USE OF UNAPPROVED DOCUMENTS SHALL BE AT THE CONTRACTOR'S OWN RISK. CORRECTIONS OF ALL WORK BASED ON SUCH DOCUMENTS SHALL BE PERFORMED AT THE CONTRACTOR'S EXPENSE.
12. THESE PLANS AND SPECIFICATIONS REPRESENT THE STRUCTURAL DESIGN ONLY. NO INFORMATION NOR WARRANTY IS PROVIDED FOR THE WORK OF ANY OTHER CONSULTANT (ARCHITECT, MECHANICAL, ELECTRICAL, ETC.). THIS INCLUDES, BUT IS NOT LIMITED TO, WATERPROOFING, DRAINAGE, VENTILATION, ACCESSIBILITY, OR DIMENSIONS.

FOUNDATIONS

1. REFER TO STRUCTURAL DESIGN PARAMETERS SECTION ON SHEET S-1.1 FOR ALL SOIL DESIGN VALUES USED IN CALCULATIONS.
2. SOILS VALUES PER GEOLOGIC/GEOTECHNICAL REPORT REFERENCED ON FOUNDATION PLAN. THIS REPORT AND ALL RECOMMENDATIONS CONTAINED THEREIN ARE TO BE CONSIDERED A PART OF THESE PLANS.
3. IT IS THE CONTRACTOR'S RESPONSIBILITY TO OBTAIN A COPY OF THE SOILS REPORT FROM THE OWNER. A COPY OF THE SOILS REPORT SHALL BE ON THE JOB SITE DURING THE COURSE OF CONSTRUCTION.
4. UNEXPECTED SOIL CONDITIONS: ALLOWABLE VALUES AND SUBSEQUENT FOUNDATION DESIGNS ARE BASED ON SOIL CONDITIONS WHICH ARE SHOWN BY TEST BORINGS. ACTUAL SOIL CONDITIONS WHICH DEVIATE APPRECIABLY FROM THAT SHOWN IN THE TEST BORINGS SHALL BE REPORTED TO THE ENGINEER IMMEDIATELY.
5. ALL COMPACTION, FILL, BACKFILLING AND SITE PREPARATION SHALL BE PERFORMED IN ACCORDANCE WITH PROJECT SOILS REPORT OR CBC APPENDIX CHAPTER J. ALL SUCH WORK SHALL BE PERFORMED UNDER THE SUPERVISION OF THE PROJECT SOILS ENGINEER.
6. EXCAVATE TO REQUIRED DEPTHS AND DIMENSIONS (AS INDICATED IN THE DRAWINGS), CUT SQUARE AND SMOOTH WITH FIRM LEVEL BOTTOMS. CARE SHALL BE TAKEN NOT TO OVER-EXCAVATE FOUNDATION AT LOWER ELEVATION AND PREVENT DISTURBANCE OF SOILS AROUND HIGH ELEVATION.
7. FOUNDATIONS SHALL BE POURED IN NEAT EXCAVATIONS.
8. EXCAVATE ALL FOUNDATIONS TO REQUIRED DEPTHS INTO COMPACTED FILL (AS PER PLANS AND DETAILS) AND AS VERIFIED BY THE BUILDING OFFICIAL AND/OR SOILS ENGINEER.
9. ALL FOUNDATIONS SHALL BE INSPECTED AND APPROVED BY THE APPROPRIATE BUILDING OFFICIAL AND/OR A REPRESENTATIVE OF THE SOILS ENGINEER PRIOR TO FORMING AND PLACEMENT OF REINFORCING OR CONCRETE.
10. FOUNDATIONS SHALL NOT BE POURED UNTIL ALL REQUIRED REINFORCING STEEL, FRAMING HARDWARE, SLEEVES, INSERTS, CONDUITS, PIPES, ETC. AND FORMWORK IS PROPERLY PLACED AND INSPECTED BY THE APPROPRIATE BUILDING OFFICIAL/INSPECTOR(S).
11. IT IS THE RESPONSIBILITY OF THE CONTRACTOR IN CHARGE OF FRAMING TO PROPERLY POSITION ALL HOLDOWN BOLTS, ANCHOR BOLTS, COLUMN BASES, AND ALL OTHER CAST-IN-PLACE HARDWARE. REFER TO TYPICAL DETAILS. ALL HARDWARE TO BE SECURED PRIOR TO FOUNDATION INSPECTIONS.
12. THE SIDES AND BOTTOMS OF DRY EXCAVATIONS MUST BE MOISTENED JUST PRIOR TO PLACING CONCRETE; CONVERSELY, DE-WATER FOOTINGS AS REQUIRED TO REMOVE STANDING WATER AND TO MAINTAIN OPTIMUM WORKING CONDITIONS.
13. THE CONTRACTOR SHALL BE SOLELY RESPONSIBLE FOR ALL EXCAVATION PROCEDURES INCLUDING LAGGING, SHORING, AND THE PROTECTION OF ADJACENT PROPERTY, STRUCTURES, STREETS, AND UTILITIES IN ACCORDANCE WITH ALL FEDERAL, STATE AND LOCAL SAFETY ORDINANCES. THE CONTRACTOR SHALL PROVIDE FOR THE DESIGN AND INSTALLATION OF ALL CRIBBING, BRACING AND SHORING REQUIRED.

CONCRETE

1. ALL CONCRETE SHALL HAVE:
   - 1.1. AN ULTIMATE COMPRESSIVE STRENGTH (F'C) OF 2500 PSI AT 28 DAYS (UON).
   - 1.2. A MAXIMUM SLUMP OF 5" AT POINT OF PLACEMENT FOR SLABS AND FOOTINGS. CAISSONS SHALL HAVE A 4" TO 6" SLUMP AT "DRY" HOLES AND A 6" - 8" SLUMP AT "WET" HOLES.
   - 1.3. A W/C RATIO OF 0.55 OR LESS FOR ALL SLABS, WALLS, AND COLUMNS, AND 0.60 OR LESS FOR ALL FOUNDATIONS.
   - 1.4. A NORMAL DRY-WEIGHT DENSITY (UON)
2. SPECIAL INSPECTION IS NOT REQUIRED, EXCEPT WHERE SPECIFIED HEREIN, ON THE STRUCTURAL PLANS, OR BY THE BUILDING DEPARTMENT. AS A MINIMUM, SPECIAL INSPECTION IS ALWAYS REQUIRED ON:
   - 2.1. STRUCTURAL SLABS, FLAT PLATES
   - 2.2. WALLS, COLUMNS, BEAMS
   - 2.3. PILES, CAISSONS
   - 2.4. WELDING OF REINFORCEMENT, INSTALLATION OF MECHANICAL BAR SPLICE DEVICES, EPOXY APPLICATIONS

   WHEN REQUIRED OR SPECIFIED, SPECIAL INSPECTION SERVICES SHALL CONFORM TO CBC CHAPTER 17 AND SHALL BE PROVIDED BY AN ICC CERTIFIED INSPECTOR OR BUILDING DEPARTMENT APPROVED ENGINEER.

   THE BUILDING DEPARTMENT RESERVES THE RIGHT TO WAIVE OR REQUIRE THE SPECIAL INSPECTION REQUIREMENTS [CBC 1704.1 AND 1704.4] . NOTHING IN THESE PLANS WAIVES THE BUILDING DEPARTMENT RIGHT TO REQUIRE SPECIAL INSPECTION ON AT ANY POINT AND ON ANY MATERIAL.
3. TESTING OF MATERIALS USED IN CONCRETE CONSTRUCTION MUST BE PERFORMED AS NOTED ON STRUCTURAL PLANS OR AT THE REQUEST OF THE BUILDING DEPARTMENT TO DETERMINE IF MATERIALS ARE QUALITY SPECIFIED. TESTS OF MATERIALS AND OF CONCRETE SHALL BE MADE BY AN APPROVED AGENCY AND AT THE EXPENSE OF THE OWNER; SUCH TESTS SHALL BE MADE IN ACCORDANCE WITH THE STANDARDS LISTED IN CBC TABLE 1705.3.

   WHEN TESTING OF CONCRETE IS REQUIRED, FOUR (4) TEST CYLINDERS SHALL BE TAKEN FROM EACH 150 YARDS, OR FRACTION THEREOF, POURED IN ANY ONE DAY. ONE (1) CYLINDER SHALL BE TESTED AT SEVEN (7) DAYS; TWO (2) AT 28 DAYS; ONE (1) SHALL BE HELD IN RESERVE. IF CONTRACTOR ELECTS TO HAVE ADDITIONAL TESTS PERFORMED FOR "EARLY-BREAK" RESULTS, ADDITIONAL TEST CYLINDERS MUST BE TAKEN. AT NO TIME SHALL THE CONTRACTOR INSTRUCT THE TESTING AGENCY TO PERFORM TESTS ON A SCHEDULE DIFFERENT THAT ABOVE WITHOUT THE PRIOR AUTHORIZATION OF THE ENGINEER.

   CONTRACTOR IS RESPONSIBLE FOR COMPLYING WITH APPLICABLE TESTING REQUIREMENTS OF THE BUILDING DEPARTMENT. COPIES OF ALL TEST REPORTS SHALL BE PROVIDED TO ENGINEER AND BUILDING DEPARTMENT FOR REVIEW IN A TIMELY MANNER.
4. THE CONTRACTOR SHALL REMOVE AND REPLACE ANY CONCRETE WHICH FAILS TO ATTAIN SPECIFIED 28 DAY COMPRESSIVE STRENGTH IF SO DIRECTED BY THE ENGINEER. ANY DEFECTS IN THE HARDENED CONCRETE SHALL BE REPAIRED TO THE SATISFACTION OF THE ENGINEER AND/OR ARCHITECT OR THE HARDENED CONCRETE SHALL BE REPLACED AT THE CONTRACTOR'S EXPENSE.
5. ALL CONCRETE WORK SHALL CONFORM WITH CBC CHAPTER 19.
6. ALL CEMENT SHALL BE PORTLAND CEMENT TYPE I OR II AND SHALL CONFORM TO ASTM C 150.
7. ALL AGGREGATES SHALL CONFORM TO ASTM C33. MAXIMUM AGGREGATE SIZES:
   - 7.1. FOOTINGS: 1-1/2"
   - 7.2. ALL OTHER WORK: 1"
8. WHERE NOT SPECIFICALLY DETAILED, THE MINIMUM CONCRETE COVER ON REINFORCING STEEL SHALL BE:
   - 8.1. PERMANENTLY EXPOSED TO EARTH OR WEATHER
     - 8.1.1. CAST AGAINST EARTH: 3"
     - 8.1.2. CAST AGAINST FORMS: 2"
   - 8.2. NOT EXPOSED TO EARTH OR WEATHER
     - 8.2.1. SLABS, WALLS, JOISTS: 3/4"
     - 8.2.2. BEAMS, GIRDERS, COLUMNS: 1-1/2"
9. MINIMUM LAP SPLICE LENGTH FOR ALL REINFORCING STEEL SHALL BE 48 BAR DIAMETER (UON) ON THE STRUCTURAL PLANS AND/OR DETAILS. ALL LAP SPLICES TO BE STAGGERED.
10. ALL ANCHOR BOLTS USED IN CONCRETE CONSTRUCTION SHALL HAVE A MINIMUM TOTAL EMBEDMENT AS FOLLOWS (UON):
    - 10.1. 5/8" DIA.: 7"
    - 10.2. 3/4" DIA.: 8"
    - 10.3. 7/8" DIA.: 9"
    - 10.4. 1" DIA.: 10"

    OVERALL LENGTH OF ANCHOR BOLTS SHALL BE COORDINATED WITH SILL PLATE REQUIREMENTS AS INDICATED ELSEWHERE IN THESE SPECIFICATIONS. ALL ANCHOR BOLTS IN CONTACT WITH PRESERVATIVE-TREATED WOOD SHALL BE HOT DIPPED ZINC GALVANIZED OR STAINLESS STEEL.
11. ALL REINFORCING STEEL, ANCHOR BOLTS, DOWELS, INSERTS, AND ANY OTHER HARDWARE TO BE CAST IN CONCRETE SHALL BE WELL SECURED IN POSITION PRIOR TO FOUNDATION INSPECTION. ALL HARDWARE TO BE INSTALLED IN ACCORDANCE WITH RESPECTIVE MANUFACTURER'S SPECIFICATIONS. REFER TO ARCHITECTURAL AND STRUCTURAL PLANS FOR LOCATIONS OF EMBEDDED ITEMS.
12. LOCATIONS OF ALL CONSTRUCTION JOINTS, OTHER THAN SPECIFIED ON THE STRUCTURAL PLANS, SHALL BE APPROVED BY THE ARCHITECT AND ENGINEER PRIOR TO FORMING. CONSTRUCTION JOINTS SHALL BE THOROUGHLY AIR AND WATER CLEANED AND HEAVILY ROUGHENED SO AS TO EXPOSE COARSE AGGREGATES. ALL SURFACES TO RECEIVE FRESH CONCRETE SHALL BE MAINTAINED CONTINUOUSLY WET AT LEAST THREE (3) HOURS IN ADVANCE OF CONCRETE PLACEMENT.

    UNLESSSS SPECIFICALLY DETAILED OR OTHERWISE NOTED, CONSTRUCTION AND CONTROL JOINTS SHALL BE PROVIDED IN ALL CONCRETE SLABS-ON-GRADE. JOINTS SHALL BE LOCATED SUCH THAT THE AREA DOES NOT EXCEED 400 SQ. FEET.
13. THE ARCHITECT, ENGINEER AND APPROPRIATE INSPECTORS SHALL BE NOTIFIED IN A TIMELY MANNER FOR A REINFORCEMENT INSPECTION PRIOR TO THE PLACEMENT OF ANY CONCRETE.
14. THE CONTRACTOR SHALL OBTAIN APPROVAL FROM THE ARCHITECT AND THE ENGINEER PRIOR TO PLACING SLEEVES,PIPES, DUCTS, CHASES, CORING AND OPENING ON OR THROUGH STRUCTURAL CONCRETE BEAMS, WALLS, FLOORS, AND ROOF SLABS UNLESSSS SPECIFICALLY DETAILED OR NOTED ON THE PLANS. ALL PILES OR CONDUITS PASSING THROUGH CONCRETE MEMBERS SHALL BE SLEEVED WITH STANDARD STEEL PIPE SECTIONS.
15. THE CONTRACTOR IS RESPONSIBLE FOR DESIGN, INSTALLATION, MAINTENANCE AND REMOVAL OF ALL FORMWORK. FORMS SHALL BE PROPERLY CONSTRUCTED, SUFFICIENTLY TIGHT TO PREVENT LEAKAGE, SUFFICIENTLY STRONG, AND BRACED TO MAINTAIN THEIR SHAPE AND ALIGNMENT UNTIL NO LONGER NEEDED FOR CONCRETE SUPPORT. JOINTS IN FORMWORK SHALL BE TIGHTLY FITTED AND BLOCKED, AND SHALL PRODUCE A FINISHED CONCRETE SURFACE THAT IS TRUE AND FREE FROM BLEMISHES. FORMS FOR EXPOSED CONCRETE SHALL BE PRE-APPROVED BY THE ARCHITECT TO ENSURE CONFORMANCE WITH DESIGN INTENT.
16. REMOVE FORM WORK IN ACCORDANCE WITH THE FOLLOWING SCHEDULE:
    - 16.1. FORMS AT SLAB EDGE: 1 DAY
    - 16.2. SIDE FORMS AT FOOTINGS: 2 DAYS
    - 16.3. ALL OTHER VERTICAL SURFACES: 7 DAYS
    - 16.4. BEAMS, COLUMNS, GIRDERS: 15 DAYS
    - 16.5. ELEVATED SLABS: 28 DAYS

    ENGINEER RESERVES THE RIGHT TO MODIFY REMOVAL SCHEDULE ABOVE BASED ON FIELD OBSERVATIONS, CONCRETE CONDITIONS, AND/OR CONCRETE TEST RESULTS.
17. ALL CONCRETE (EXCEPT SLABS-ON-GRADE 6" OR LESS) SHALL BE MECHANICALLY VIBRATED AS IT IS PLACED. VIBRATOR TO BE OPERATED BY EXPERIENCED PERSONNEL. THE VIBRATOR SHALL BE USED TO CONSOLIDATE THE CONCRETE. THE VIBRATOR SHALL NOT BE USED TO CONVEY CONCRETE, NOR SHALL IT BE PLACED ON REINFORCING AND/OR FORMS. CONCRETE IN CAISSONS SHALL BE PLACED AND CONSOLIDATED IN AN APPROVED MANNER.
18. CONCRETE SHALL BE MAINTAINED IN A MOIST CONDITION FOR A MINIMUM OF FIVE (5) DAYS AFTER PLACEMENT.
19. CONCRETE SHALL NOT BE PERMITTED TO FREE FALL MORE THAN SIX (6) FEET. FOR HEIGHTS GREATER THAN SIX (6) FEET, USE TREMIE, PUMP OR OTHER METHOD CONSISTENT WITH APPLICABLE STANDARDS.
20. CONTRACTOR SHALL SUBMIT MIX DESIGNS FOR ALL CONCRETE WITH ULTIMATE COMPRESSIVE STRENGTH GREATER THAN 2500 PSI TO ARCHITECT AND ENGINEER FOR APPROVAL SEVEN (7) DAYS PRIOR TO PLACEMENT. MIX DESIGNS SHALL BE PREPARED B AN APPROVED TESTING LABORATORY. SUFFICIENT DATA MUST BE PROVIDED FOR ALL ADMIXTURES.
21. REFER TO ARCHITECTURAL PLANS FOR LOCATIONS OF ALL DIMENSIONS, SLAB DEPRESSIONS, SLOPES, DRAINS, CURBS, AND CONTROL JOINTS.

REINFORCEMENT

1. REINFORCING STEEL SHALL BE TO DEFORMED, CLEAN, FREE OF RUST, GREASE OR ANY OTHER MATERIAL LIKELY TO IMPAIR CONCRETE BOND.
2. ALL BARS SHALL CONFORM TO ASTM A615, GRADE 60 MINIMUM (UON ON STRUCTURAL PLANS), EXCEPT THAT #3 & #4 BARS MAY BE GRADE 40. ALL WELD WIRE FABRIC (WWF) SHALL CONFORM TO ASTM A185.
3. REINFORCING STEEL THAT IS TO BE WELDED SHALL CONFORM TO ASTM A706. ALL WELDING OF REINFORCEMENT SHALL BE SUBJECT TO SPECIAL INSPECTION.
4. 4. CONTRACTOR SHALL TAKE NECESSARY STEPS (STANDARD TIES, ANCHORAGE DEVICES, ETC.) TO SECURE ALL REINFORCING STEEL IN THEIR TRUE POSITION AND PREVENT DISPLACEMENT DURING CONCRETE PLACEMENT.
5. FABRICATION, PLACEMENT AND INSTALLATION OF REINFORCING STEEL SHALL CONFORM TO:
   - 5.1. CONCRETE REINFORCING STEEL INSTITUTE (CRSI) MANUAL OF STANDARD PRACTICE
6. SHOP DRAWINGS FOR FABRICATION OF REINFORCING STEEL SHALL BE APPROVED BY THE CONTRACTOR AND SUBMITTED TO THE ARCHITECT AND ENGINEER FOR REVIEW AND APPROVAL PRIOR TO FABRICATION. SHOP DRAWINGS ARE NOT REQUIRED FOR SLABS-ON-GRADE OR FOUNDATIONS UON ON THE STRUCTURAL PLANS.
7. HEATING OF REINFORCING STEEL TO AID IN BENDING AND SHAPING OF BARS IS NOT PERMITTED. ALL BENDS IN REINFORCING STEEL ARE TO BE MADE COLD. ALL BEND RADII SHALL CONFORM TO CRSI MANUAL OF STANDARD PRACTICE.
8. REFER TO CONCRETE AND MASONRY NOTES FOR SPECIFIC MINIMUM SPLICE LENGTH AND SPLICE STAGGERING REQUIREMENTS. LAP WELDED WIRE FABRIC (WWF) REINFORCEMENT TWO (2) MODULES MINIMUM (UON). ALL SPLICES ARE TO BE STAGGERED.

STRUCTURAL STEEL

1. ALL STRUCTURAL STEEL AND CONNECTIONS SHALL BE FABRICATED AND ERECTED IN ACCORDANCE WITH AISC SPECIFICATIONS, SEISMIC PROVISIONS SUPPLEMENTS NO. 1 AND 2, AND CODE OF STANDARD PRACTICE AS AMENDED TO DATE.
2. STEEL FABRICATION SHOP DRAWINGS SHALL BE SUBMITTED FOR REVIEW BY THE ARCHITECT AND ENGINEER PRIOR TO FABRICATION.
3. MATERIALS:
   - 3.1. TUBE SECTIONS ("TS" OR "HSS") SHALL CONFORM TO ASTM A500 GR. B.
   - 3.2. PIPE SECTIONS SHALL BE WELDED SEAMLESS PIPE CONFORMING TO ASTM A53 GR. B OR ASTM A501.
     - 3.2.1. STD INDICATES STANDARD WALL
     - 3.2.2. EXT INDICATES EXTRA STRONG
     - 3.2.3. DBL INDICATES DOUBLE EXTRA STRONG
   - 3.3. ALL OTHER MATERIAL (PLATE, BARS, ETC.) SHALL CONFORM TO ASTM A36 (UON)
4. BOLTS:
   - 4.1. ALL BOLTS SHALL BE ASTM F1554 GRADE 36 (UON) ON THE STRUCTURAL PLANS.
   - 4.2. HIGH STRENGTH BOLTS COMPLYING WITH ASTM A325 AND A490, WHEN SPECIFIED, SHALL REQUIRE SPECIAL INSPECTION IN ACCORDANCE WITH CBC SECTION 1705.2.
   - 4.3. THREADED ROD, WHERE SPECIFIED, SHALL CONFORM WITH ASTM F1554 GRADE 36 (UON) ON THE STRUCTURAL PLANS.
5. BOLT HOLES SHALL BE DRILLED 1/32" TO 1/16" LARGER THAN THE SPECIFIED BOLT DIAMETER.
   - 5.1. WELDING:
   - 5.2. ALL WELDING SHALL BE PERFORMED USING SMAW, GMAW OR FCAW PROCESSES.
   - 5.3. ALL WELDED CONNECTIONS TO BE WELDED IN ACCORDANCE WITH THE LATEST EDITION OF THE AWS D1.1.
   - 5.4. ALL WELDING SHALL BE PERFORMED BY CERTIFIED WELDERS.
   - 5.5. ALL WELDING SHALL BE PERFORMED WITH E70XX ELECTRODES WITH A MINIMUM CVN TOUGHNESS OF 20 FTLB AT -20OF.
   - 5.6. WELD LENGTHS SPECIFIED ON THE PLANS ARE THE NET EFFECTIVE LENGTH REQUIRED. WHERE FILLET WELD SYMBOL IS GIVEN WITHOUT INDICATION OF SIZE, USE THE MINIMUM SIZE WELDS AS SPECIFIED IN SECTION 1.17.2 OF THE AISC MANUAL OF STEEL CONSTRUCTION 9TH EDITION.
   - 5.7. NO FIELD WELDING SHALL BE PERMITTED UON ON THE PLANS OR DETAILS.
6. NO HOLES OTHER THAN THOSE SPECIFICALLY DETAILED SHALL BE ALLOWED THROUGH STRUCTURAL STEEL MEMBERS. BURNING OR TORCHING OF HOLES IS NOT PERMITTED UNDER ANY CIRCUMSTANCES.
7. ALL STRUCTURAL STEEL SHALL BE PAINTED ONE SHOP COAT AND TOUCHED-UP IN THE FIELD WITH READ LEAD (OR APPROVED ZINC CHROMATE PRIMER) AS NECESSARY.
8. ANY STEEL MEMBER INTERFACING WITH WOOD FRAMING SHALL HAVE 1/2" DIAMETER STUDS WELDED AT 24" O.C. FOR ATTACHMENT OF WOOD NAILERS. THRU-BOLTING OF NAILERS SHALL NOT BE PERMITTED UON ON THE PLANS OR DETAILS.
9. PROVIDE HOT DIP GALVANIZING OR 3" MINIMUM CONCRETE COVER AROUND ALL STRUCTURAL STEEL BELOW GRADE.

MASONRY

1. SPECIAL INSPECTION IS REQUIRED FOR MASONRY WALLS PER CBC 1704.5
2. MASONRY UNITS: SHALL CONFORM TO ASTM C90, GRADE N, TYPE I, MEDIUM-WEIGHT. THE COMPRESSIVE STRENGTH OF THE MASONRY, F'M, SHALL BE 1500 PSI MINIMUM. REFER TO CBC 2103.
3. MORTAR: SHALL BE TYPE S, WITH A STRENGTH OF 1800 PSI MINIMUM @ 28 DAYS, PROPORTIONED IN CONFORMANCE WITH CBC TABLE 21-A. WHEN THE SPECIFIED MASONRY STRENGTH, F'M, IS GREATER THAN 2000 PSI, THEN THE MORTAR SHALL BE TYPE M. MORTAR STRENGTH SHALL BE EQUAL TO OR GREATER THAN THE MASONRY STRENGTH, F'M. NO MORTARS SHALL BE USED THAT HAVE STOOD FOR MORE THAN ONE-HOUR.
4. GROUT: STRENGTH SHALL BE NO LESS THAN 2500 PSI@ 28 DAYS. CEMENT CONTENT OF THE GROUT SHALL BE INCREASED, AS NECESSARY, TO ACHIEVE THE SPECIFIED MASONRY ASSEMBLY STRENGTH, F'M, AND ADEQUATE WORKABILITY. GROUT COMPRESSIVE STRENGTH, WHEN TESTED PER UBC STANDARD NO. 21-18 SHALL EQUAL OR EXCEED THE CONCRETE MASONRY UNIT STRENGTH. ALL GROUT ADDITIVES SHALL RECEIVE THE PRIOR APPROVAL OF THE ENGINEER AND THE BUILDING OFFICIAL.
5. ADMIXTURES: SHALL NOT BE PERMITTED IN MORTAR OR GROUT UNLESS SUSTAINING DATA HAS BEEN SUBMITTED TO AND APPROVED BY THE ENGINEER. FIRE CLAY, DIRT AND OTHER DELETERIOUS MATERIALS ARE PROHIBITED.
6. AGGREGATES: SAND FOR MORTAR SHALL CONFORM TO ASTM C144 EXCEPT THAT NOT LESS THAN 3% OF THE SAND SHALL PASS THE NUMBER 100 SIEVE. SAND AND PEA GRAVEL FOR GROUT SHALL CONFORM TO ASTM C404, TABLE 1, COARSE AGGREGATE, EXCEPT WHEN OTHER GRADINGS ARE SPECIFICALLY APPROVED BY THE ENGINEER.
7. WATER USED FOR MORTAR AND GROUT SHALL BE CLEAN AND FREE FROM DELETERIOUS AMOUNTS OF ACIDS, SALTS, ALKALI, AND ORGANIC MATERIALS.
8. STEEL REINFORCING: SHALL CONFORM TO ASTM A615, GRADE 60, CLEAN AND FREE OF RUST, EXCEPT THAT #3 BARS MAY BE GRADE 40. REINFORCING STEEL THAT IS TO BE WELDED SHALL CONFORM TO ASTM A706, AND THE WELDING SHALL BE SPECIAL INSPECTED.
9. ANCHOR BOLTS: SEE THE "STRUCTURAL STEEL" SPECIFICATIONS SECTION HEREIN.
10. ALL CELLS SHALL BE SOLID GROUTED (OR "FULLY" GROUTED). MASONRY UNITS SHALL BE LAID IN RUNNING BOND. SURFACES TO BE CLEANED OF ALL LOOSE DEBRIS PRIOR TO SETTING BLOCK. CELLS TO BE IN VERTICAL ALIGNMENT SUCH THAT MINIMUM VERTICAL UNOBSTRUCTED CORE (EXCLUDING HORIZONTAL BARS) IS 2½"X 3" FOR GROUT POURS UP TO 4 FEET AND 3"X3" FOR GROUT POURS UP TO 6 FEET.
11. ALL BED JOINTS ARE TO BE FULL-BEDDED IN MORTAR. END WALLS AND CROSS WEBS FORMING CELLS TO BE FILLED SHALL BE FULL-BEDDED IN MORTAR TO PREVENT LEAKAGE OF GROUT. ALL HEAD JOINTS ARE TO BE SOLIDLY FILLED AT LEAST 1½" BELOW TOP OF MASONRY. HORIZONTAL CONSTRUCTION JOINTS SHALL BE FORMED BY STOPPING THE GROUT POUR 1½" BELOW TOP OF MASONRY.
12. GROUT LIFTS SHALL NOT EXCEED 5 FEET 4 INCHES. GROUT SHALL BE CONSOLIDATED BY MECHANICAL VIBRATION IMMEDIATELY AFTER PLACING TO HELP ENSURE FILLING OF ALL VOIDS. RECONSOLIDATION BY VIBRATION MUST BE DONE AFTER THE INITIAL WATER LOSS AND BEFORE INITIAL SET. FOR GROUT POURS EXCEEDING 5 FEET 4 INCHES, CLEANOUT OPENINGS SHALL BE PROVIDED AT THE BOTTOM OF EACH CELL WITH A VERTICAL BAR FOR EACH POUR, CONFORMING TO MSJC 3.2 F. CLEANOUTS SHALL BE SEALED AFTER INSPECTION AND BEFORE GROUTING. WHERE CLEANOUTS ARE NOT PROVIDED, SPECIAL PROVISIONS MUST BE MADE TO KEEP THE BOTTOM AND SIDES OF THE GROUT SPACES, AS WELL AS THE MINIMUM TOTAL CLEAR AREA REQUIRED, CLEAN AND CLEAR PRIOR TO GROUTING. FOR GROUT POURS EXCEEDING 4 FEET, CONFORM TO CBC HIGH-LIFT GROUTING REQUIREMENTS.
13. REINFORCEMENT PLACEMENT:
    - 13.1. REINFORCING SHALL BE HELD SECURELY IN POSITION. VERTICAL BARS SHALL BE HELD IN POSITION AT TOP AND BOTTOM AND AT INTERVALS NOT MORE THAN 200 BAR DIAMETERS
    - 13.2. LAP SPLICES SHALL BE 40 BAR DIAMETERS MINIMUM (UON). ADJACENT BAR LAPS SHALL BE STAGGERED 3'-0" MINIMUM. HOOKS SHALL BE 16 BAR DIAMETERS (UON)
    - 13.3. REINFORCING BARS TO HAVE GROUT COVERAGE OF AT LEAST ONE BAR DIAMETER (½" MINIMUM) FROM INSIDE FACE OF SHELL, HOWEVER THE CLEAR DISTANCE FROM OUTSIDE FACE OF MASONRY TO THE REINFORCING SHALL NOT BE LESS THAN 2" WHEN MASONRY IS EXPOSED TO SOIL OR 1½" FOR OTHER CONDITIONS.
    - 13.4. THE CLEAR DISTANCE BETWEEN PARALLEL BARS IS 1" MINIMUM AND (AND SHALL NOT BE LESS THAN 1 BAR DIAMETER), EXCEPT THAT THE TWO BARS IN A CONTACT SPLICE SHALL BE IN CONTACT. THIS CLEAR DISTANCE REQUIREMENT ALSO APPLIES TO THE CLEAR DISTANCE BETWEEN A CONTACT SPLICE AND ADJACENT SPLICES OR BARS. [EXCEPTION: THE MINIMUM CLEAR DISTANCE BETWEEN PARALLEL BARS IN COLUMNS AND PILASTERS IS 2.5 BAR DIAMETERS.
14. REFER TO THE STRUCTURAL DETAILS FOR WALL REINFORCING. AT A MINIMUM, BLOCK WALL VERTICAL REINFORCING SHALL BE #4 @ 18" O.C. AND HORIZONTAL REINFORCING SHALL BE #4 @ 16" O.C. AT LEAST ONE CONTINUOUS HORIZONTAL #4 BAR OR LARGER SHALL BE PLACED IN BOTH THE BOTTOM AND THE TOP COURSE OF MASONRY WALL, (UON).
15. SEE STRUCTURAL SHEETS FOR TYPICAL WALL DETAILS. AT A MINIMUM, DOOR AND WINDOW JAMBS SHALL HAVE 2 - #5 BARS, AND HEADERS (OR "LINTELS") SHALL HAVE 2 - #5 BARS, UON ON THE PLANS. JAMB AND LINTEL BARS SHALL EXTEND A MINIMUM OF 40 BAR DIAMETERS PAST THE OPENING.
16. JAMB REINFORCING STEEL SHALL EXTEND INTO THE FOUNDATION (OR DECK) BELOW WITH LAP BARS OF THE SAME DIAMETER BENT WITH 90-DEGREE STANDARD HOOKS INTO THE FOOTING OR DECK. JAMB STEEL SHALL CONTINUE TO THE TOP OF THE WALL, UNLESS DETAILED OTHERWISE ON THE PLANS, BUT SHALL NOT EXTEND LESS THAN 40 BAR DIAMETERS PAST THE OPENING.
17. MASONRY COLUMNS & PILASTERS: REFER TO THE STRUCTURAL DETAILS FOR REINFORCEMENT REQUIREMENTS. PROVIDE AT LEAST 4 - #3 TIES IN THE TOP 5" OF THE COLUMN, AND ENGAGE AT LEAST FOUR VERTICAL BARS AND/OR ANCHOR BOLTS WITH THE TIES. THE UPPERMOST TIE SHALL BE WITHIN 2" OF THE TOP OF THE COLUMN. BARS SHALL BE PLACED NOT LESS THAN 1½" AND NOT MORE THAN 5" FROM THE SURFACE OF THE COLUMN.
18. ANCHOR BOLT INSTALLATION: SECURE IN PLACE PRIOR TO GROUTING. PROVIDE 1" MINIMUM GROUT COVERAGE.
19. CONDUIT SLEEVES SHALL NOT BE SPACED CLOSER THAN THREE SLEEVE DIAMETERS CENTER-TO-CENTER. CONDUIT AND OTHER OBSTRUCTIONS SHALL BE STRATEGICALLY LOCATED SO AS TO AVOID CONFLICT WITH WALL REINFORCING AND CELL GROUT SPACES AND THE REQUIRED CLEARANCES.
20. WATERPROOFING SHALL TO BE PROVIDED ON THE FACE OF ALL MASONRY WALLS EXPOSED TO EARTH, PER THE ARCHITECTURAL PLANS AND SPECIFICATIONS.
21. THE CONTRACTOR SHALL COORDINATE WITH ALL OTHER TRADES WHOSE WORK RELATES TO THE MASONRY INSTALLATION FOR PLACING OF ALL REQUIRED FRAMING. THIS INCLUDES, BUT IS NOT LIMITED TO, PLACING ANCHORS, BOLTS, PIPES, SLEEVES, NAILERS, BLOCKOUTS, REGLETS, FITTINGS, CONDUITS, ETC., PROVIDED BY OTHER TRADES WITHIN THE MASONRY CONSTRUCTION.
22. RETAINING WALLS SHALL NOT BE BACKFILLED UNTIL GROUT HAS SET A MINIMUM OF 14 DAYS (28 DAYS PREFERRED). ALL WALLS ARE TO BE FULLY BACKFILLED PRIOR TO FRAMING BEING PLACED ON OR AGAINST THE WALL. PER THE SOILS REPORT, ALL BACKFILL IS TO BE INSPECTED BY THE SOILS/GEOTECHNICAL ENGINEER AT THE TIME OF PLACEMENT.
23. HOT WEATHER CONSTRUCTION: MASONRY CONSTRUCTION IS NOT PERMITTED WHEN THE AMBIENT AIR TEMPERATURE EXCEEDS 100°F, OR IF IT EXCEEDS 90°F WITH A WIND VELOCITY OF 8 MPH OR GREATER. (EXCEPTION: IF PRECISE AND PROPER HOT WEATHER CONSTRUCTION AND PROTECTION REQUIREMENTS OF THE APPROPRIATE PRACTICE ARE IMPLEMENTED WHEN TEMPERATURES ARE FORECASTED TO REACH OR DO REACH THE LIMITS FOR NORMAL CONSTRUCTION. IF SUCH CONSTRUCTION IS NECESSARY, CONTACT THE ENGINEER FOR REQUIREMENTS.) CHECK LOCAL WEATHER REPORTS BEFORE THE START OF EACH DAY AND PERIODICALLY MEASURE AIR TEMPERATURE AND WIND SPEED DURING THE DAY. FOG SPRAY ALL NEWLY CONSTRUCTED MASONRY UNTIL DAMP, AT LEAST THREE TIMES A DAY UNTIL THE MASONRY IS THREE DAYS OLD.
24. COLD WEATHER CONSTRUCTION: COMPLY WITH CBC SECTION 2104.1.

TIMBER / LUMBER

1. ALL STRUCTURAL LUMBER SHALL BE DOUGLAS FIR-LARCH, S4S AND SHALL CONFORM TO CBC SECTION 2303.1.
2. THE MINIMUM LUMBER GRADE OF EACH MEMBER SHALL BE AS FOLLOWS UON ON PLANS AND DETAILS:
   - 2.1. 2X STUDS, BLOCKING, PLATES: STUD
   - 2.2. 2X JOISTS #2 OR BETTER
   - 2.3. 4X4 BEAMS OR POSTS #2 OR BETTER
   - 2.4. 4X6 OR LARGER BEAMS OR POSTS #1 OR BETTER

   IT IS RECOMMENDED (BUT NOT REQUIRED) THAT ALL EXPOSED MEMBERS BE SELECT STRUCTURAL OR BETTER AND FREE OF HEART CENTER DUE TO VISUAL CHARACTERISTICS.
3. ALL LUMBER IN CONTACT WITH CONCRETE OR MASONRY SHALL BE REDWOOD OR PRESSURE TREATED DOUGLAS FIR. CONTRACTOR SHALL COORDINATE WITH EOR IF PRESSURE TREATED MATERIAL UTILIZES A CORROSIVE TREATMENT GREATER THAN "DOT" PRIOR TO INSTALLATION. WHENEVER IT IS NECESSARY TO CUT, NOTCH, BORE OR SPLICE PRESSURE TREATED MATERIAL, ALL NEWLY CUT SURFACES SHALL BE THOROUGHLY PAINTED WITH THE SAME PRESERVATIVE.
4. MAXIMUM MOISTURE CONTENT FOR ALL STRUCTURAL MEMBERS SHALL NOT EXCEED 19%.

ALL PLYWOOD SHEATHING SHALL BE CDX GRADE (OR BETTER) DOUGLAS FIR WITH EXTERIOR GLUE. ALL SHEATHING SHALL CONFORM TO CBC STANDARD 23-2 AND GRADE-MARKED BY THE AMERICAN PLYWOOD ASSOCIATION (APA). PANEL INDEX TO BE 40/20 FOR FLOORS AND 24/0 FOR ROOFS (UON) ON THE PLANS AND DETAILS.

FASTENERS

1. NAILS:
   - 1.1. SHALL BE WITH "COMMON" NAILS (UON).
   - 1.2. SHALL NOT BE DRIVEN CLOSER THAN ½ THEIR LENGTH NOR CLOSER THAN ¼ OF THEIR LENGTH TO THE EDGE OR END OF A MEMBER, EXCEPT FOR SHEATHING.
   - 1.3. SHALL BE INSTALLED IN PRE-DRILLED LEAD HOLES IF NECESSARY TO AVOID SPLITTING.
   - 1.4. IN CONTACT WITH PRESERVATIVE-TREATED WOOD SHALL BE HOT DIPPED ZINC GALVANIZED OR STAINLESS STEEL.
   - 1.5. ALL NAILING CONFORM TO 2016 CBC TABLE 2304.10.1.
2. LAG SCREWS:
   - 2.1. SHALL BE INSTALLED INTO PRE-DRILLED LEAD HOLES. LUBRICANT (OR SOAP) SHALL BE USED TO FACILITATE INSTALLATION AND PREVENT DAMAGE TO THE SCREWS.
   - 2.2. IN CONTACT WITH PRESERVATIVE-TREATED WOOD SHALL BE HOT DIPPED ZINC GALVANIZED OR STAINLESS STEEL.
3. BOLTS:
   - 3.1. SHALL CONFORM TO ASTM F1554 GRADE 36 (UON) ON PLANS AND DETAILS.
   - 3.2. SHALL BE INSTALLED IN PRE-DRILLED HOLES A MAXIMUM OF 1/16" LARGER THAN THE SPECIFIED BOLT DIAMETER.
   - 3.3. WHEN INSTALLED AGAINST WOOD SURFACES, SHALL HAVE STANDARD WASHERS UNDER THE HEADS AND NUTS.
   - 3.4. IN CONTACT WITH PRESERVATIVE-TREATED WOOD SHALL BE HOT DIPPED ZINC GALVANIZED OR STAINLESS STEEL.
4. ANCHOR BOLTS:
   - 4.1. SHALL BE 5/8" DIAMETER WITH 3X3X0.229" STEEL PLATE WASHERS AT SHEARWALLS.
   - 4.2. SHALL HAVE 7" MINIMUM EMBEDMENT. (CONTRACTOR TO COORDINATE LENGTH OF BOLTS WITH SILL PLATE THICKNESSES)
   - 4.3. SHALL CONFORM TO ASTM F1554 GRADE 36
   - 4.4. SHALL BE HOT DIPPED ZINC GALVANIZED OR STAINLESS STEEL
   - 4.5. SHALL NOT BE SPACED GREATER THAN 72" O.C. REFER TO SHEARWALL SCHEDULE FOR SPECIFIC ANCHOR BOLT SPACING REQUIREMENTS.
   - 4.6. SHALL BE PLACED A MAXIMUM OF 12" FROM WALL CORNERS, WALL ENDS, AND SILL PLATE SPLICES (BUT NOT LESS THAN 7 DIAMETERS), AND A MINIMUM OF TWO BOLTS PER PIECE OF SILL PLATE IS REQUIRED.
   - 4.7. SHALL BE SECURED IN PLACE PRIOR TO FOUNDATION INSPECTION

CARPENTRY

1. REFER TO 2016 CBC TABLE 2304.10.1. FOR ALL MINIMUM NAILING REQUIREMENTS.
2. REFER TO INDIVIDUAL SECTIONS FOR APPLICABLE MATERIAL SPECIFICATIONS.
3. FABRICATE, SIZE, INSTALL, CONNECT, FASTEN, BORE, NOTCH, AND CUT WOOD AND PLYWOOD WITH JOINTS TRUE, TIGHT, AND WELL-NAILED, SCREWED OR BOLTED AS REQUIRED, ALL MEMBERS TO HAVE SOLID BEARING WITHOUT BEING SHIMMED (UON). SET HORIZONTAL MEMBERS SUBJECT TO BENDING WITH THE CROWN UP. INSTALL FRAMING PLUMB, SQUARE, TRUE AND CUT FOR FULL BEARING. SPLICES ARE NOT PERMITTED BETWEEN BEARINGS. USE FULL LENGTHS (UON)
4. METAL FRAMING ANGLES, ANCHOR, CLIPS, STRAPS, TIES, HOLDOWNS, ETC. SHALL BE MANUFACTURED BY SIMPSON STRONG-TIE CO. NO SUBSTITUTIONS SHALL BE PERMITTED WITHOUT PRIOR APPROVAL OF THE ENGINEER.
5. ALL WALLS ARE TO HAVE CONTINUOUS DOUBLE 2X TOP PLATES SPLICED AS FOLLOWINGS (UON) ON THE PLANS AND DETAILS.
6. WALL STUDS:
   - 6.1. (UON) USE THE FOLLOWING GUIDELINES FOR WALL FRAMING:
   - 6.2. USE 2X4 STUDS AT 16" O.C. FOR WALLS LESS THAN 9'-0" TALL.
   - 6.3. WALLS 9'-0" TO 16'-0" TALL SHALL BE CONSTRUCTED OF 2X6 STUDS AT 16" O.C.
   - 6.4. REQUEST SPECIFICALLY ENGINEERED WALL DETAILS FOR WALLS GREATER THAT 16'-0" TALL.
7. BLOCKING:
   - 7.1. PROVIDE MIN. ONE ROW OF NOMINAL 2" THICK BLOCKING OF SAME WIDTH AS STUD, FITTED SNUGLY AND SPIKED INTO STUDS AT MID-HEIGHT OF PARTITIONS OR WALLS OVER EIGHT FEET HIGH.
   - 7.2. ALL CRIPPLE WALLS (OR "PONY WALLS") LESS THAN 14" IN HEIGHT SHALL BE SOLID BLOCKING.
   - 7.3. REFER TO SHEARWALL SECTION FOR ADDITIONAL BLOCKING REQUIREMENTS.
8. NOTCHING:
   - 8.1. IS NOT PERMITTED OF ANY STRUCTURAL MEMBER WITHOUT PRIOR APPROVAL
   - 8.2. IN EXTERIOR AND BEARING WALLS, NOTCHES SHALL NOT EXCEED 25% OF THE STUD DEPTH.
   - 8.3. NON-BEARING PARTITION WALLS, NOTCHES SHALL NOT EXCEED 40% OF THE STUD DEPTH.
   - 8.4. SUCCESSIVE NOTCHES IN THE SAME MEMBER SHALL BE SPACED A MINIMUM OF 18" APART.
9. BORING:
   - 9.1. IS NOT PERMITTED OF ANY STRUCTURAL MEMBER WITHOUT PRIOR APPROVAL
   - 9.2. IN EXTERIOR AND BEARING WALLS, HOLES SHALL NOT EXCEED 40% OF THE STUD DEPTH.
   - 9.3. NON-BEARING PARTITION WALLS, SHALL MAY BE DRILLED NOT GREATER THAN 60% OF THE STUD DEPTH.
   - 9.4. SUCCESSIVE HOLES IN THE SAME MEMBER SHALL BE SPACED A MINIMUM OF 18" APART.
10. BEARING:
    - 10.1. PROVIDE A MINIMUM OF 1½" OF BEARING FOR ALL 2X JOISTS AND ALL 4X10 / 6X8 HEADERS & SMALLER.
    - 10.2. PROVIDE A MINIMUM OF 3" OF BEARING FOR ALL BEAMS AND HEADERS 4X12 / 6X10 & LARGER (UON).
    - 10.3. MEMBERS BEARING ON PREFABRICATED HANGERS ARE TO HAVE FULL BEARING AND NAILING PER MANUFACTURER'S SPECIFICATIONS.
11. POSTS:
    - 11.1. POSTS INSIDE WALLS SHALL BEAR ON SILL PLATES AND SHALL BE CONTINUOUS BETWEEN TOP AND BOTTOM PLATES, (UON).
    - 11.2. PROVIDE POSTS UNDER ALL BEAMS, GIRDERS OR DOUBLE JOISTS EQUAL TO THE WIDTH OF THE SUPPORTED MEMBER.
    - 11.3. POSTS ON UPPER LEVELS ARE TO BE STACKED ON POSTS OF EQUAL SIZE AT LEVELS BELOW, UNLESS A LARGER POST IS SPECIFIED ON THE PLANS.
    - 11.4. VERTICAL BLOCKING ("SQUASH BLOCKS") SHALL BE USED TO FULLY TRANSFER THE POST AREA THROUGH FLOORS TO FOUNDATION. VERTICAL BLOCKING SHALL BE EQUAL TO FLOOR THICKNESS PLUS 1/16".
    - 11.5. HEADERS FRAMING INTO CONTINUOUS POSTS WITHOUT TRIMMER STUDS SHALL BE SUPPORTED IN SIMPSON HUC HANGERS (UON).
    - 11.6. POSTS WHEN ISOLATED, SHALL BE SEATED IN SIMPSON POST OR COLUMN BASES (UON)
12. FLOOR FRAMING:
    - 12.1. PROVIDE WOOD JOISTS, AS SPECIFIED, LAID WITH THE CROWN UP AND SPACED AS INDICATED.
    - 12.2. PROVIDE A MINIMUM OF 1½" END BEARING UNLESSSS OTHERWISE SHOWN.
    - 12.3. PROVIDE FULL DEPTH SOLID 2X BLOCKING OR CROSS-BRIDGING BETWEEN THE JOISTS AT 8'-0" O.C. MAX. FOR FLOORS FRAMED WITH I JOISTS, REFER TO THE MANUFACTURER'S SPECIFICATIONS FOR BLOCKING REQUIREMENTS.
    - 12.4. PROVIDE FULL DEPTH SOLID 2X BLOCKING BETWEEN THE JOISTS UNDER ALL WALLS AND PARTITIONS WHERE THE WALL OR PARTITION IS PERPENDICULAR TO THE FLOOR FRAMING (INCLUDING FLOORS FRAMED WITH I JOISTS)
    - 12.5. INSTALL 3/4" PLYWOOD SHEATHING WITH THE FACE GRAIN ACROSS SUPPORTS, END SUPPORTS STAGGERED AND THE EDGES OF SHEETS CENTERED OVER SUPPORTS. IF T&G PLYWOOD IS NOT USED, PROVIDE BLOCKING AT ALL PLYWOOD EDGES. GLUE TO JOISTS AND FULLY NAIL WITH COMMON NAILS PER THE PLANS.
13. ROOF FRAMING:
    - 13.1. PROVIDE WOOD JOISTS, AS SPECIFIED, LAID WITH THE CROWN UP AND SPACED AS INDICATED.
    - 13.2. PROVIDE A MINIMUM OF 1½" END BEARING (UON).
    - 13.3. PROVIDE FULL DEPTH SOLID 2X BLOCKING OR CROSS-BRIDGING BETWEEN THE JOISTS AT 8'-0" O.C. MAX.
    - 13.4. PROVIDE ALL CRICKET FRAMING REQUIRED TO ACHIEVE POSITIVE DRAINAGE PER ARCHITECTURAL DRAWINGS.
    - 13.5. INSTALL PLYWOOD PANELS WITH THE FACE GRAIN ACROSS THE FRAMING AND CLOSE JOINTS AND NAIL AT EACH SUPPORT. FULLY NAIL WITH COMMON NAILS PER THE PLANS.
    - 13.6. PROVIDE SIMPSON "PSCL" CLIPS AT ALL PLYWOOD JOINTS PERPENDICULAR TO FRAMING. PROVIDE CLIPS MIDWAY BETWEEN FRAMING MEMBERS AT THE UNSUPPORTED EDGES OF PLYWOOD WHEN MEMBERS ARE SPACED AT 24" O.C. OR GREATER. IF CLIPS ARE NOT USED, PROVIDE SOLID BLOCKING FOR JOINTS PERPENDICULAR TO FRAMING.
14. SHEARWALLS:
    - 1.1. REFER TO PLANS FOR ALL SHEARWALL LOCATIONS, LENGTH TYPE AND NAILING.
    - 1.2. REFER TO SHEARWALL SCHEDULE ON TITLE SHEET FOR ADDITIONAL INFORMATION.
    - 1.3. SHEARWALL LENGTHS SPECIFIED ON PLANS ARE MINIMUM REQUIRED.
    - 1.4. SHEARWALLS TO BE NAILED WITH COMMON NAILS. ALL NAILS TO HAVE MINIMUM 3/8" EDGE DISTANCE TO PANEL OR FRAMING MEMBER.
    - 1.5. IF 3X FRAMING IS REQUIRED, STAGGER EDGE NAILING. 3X FRAMING IS REQUIRED AT:
      - 1.5.1. ALL PANEL JOINTS
      - 1.5.2. ALL SILL PLATES ON CONCRETE OR MASONRY
      - 1.5.3. ALL SILL PLATES AT DOUBLE-SIDED SHEARWALLS
    - 1.6. OSB MAY BE USED IN LIEU OF PLYWOOD.

ENGINEERED LUMBER

1. GLU-LAMINATED BEAMS
   - 1.1. SHALL BE 24F-V4 FOR SIMPLE SPANS AND 24F-V8 FOR BEAMS WITH CANTILEVERS WITH THE FOLLOWING MINIMUM PROPERTIES:
     - 1.1.1. FB = 2400 PSI
     - 1.1.2. FV = 165 PSI
     - 1.1.3. FC = 450 PSI
     - 1.1.4. E = 1800 PSI
   - 1.2. SHALL NOT BE NOTCHED, CUT OR DRILLED WITHOUT PRIOR APPROVAL FROM THE ENGINEER
   - 1.3. SHALL HAVE EXTERIOR GLUE AND WEATHER-TREATMENT PRIOR TO INSTALLATION
   - 1.4. SHALL BE FABRICATED BY AN APPROVED MANUFACTURER. AN A.I.T.C. CERTIFICATE OF COMPLIANCE SHALL BE GIVEN TO THE BUILDING INSPECTOR PRIOR TO INSTALLATION
   - 1.5. SHALL HAVE FACTORY STANDARD CAMBER, EXCEPT WHERE NOTED OTHERWISE ON THE PLANS
2. LAMINATED VENEER LUMBER (LVL):
   - 2.1. SHALL BE 1-3/4" MINIMUM THICKNESS WITH THE FOLLOWING MINIMUM PROPERTIES:
   - 2.2. E = 1900 KSI
   - 2.3. FB = 2600 PSI
   - 2.4. FV = 285 PSI
   - 2.5. FC (PARALLEL) = 2500 PSI
   - 2.6. FC (PERP.) = 750 PSI
   - 2.7. FT (PARALLEL) = 1500 PSI
   - 2.8. SPECIFIC GRAVITY = 0.50
   - 2.9. SHALL BE FABRICATED BY AN APPROVED MANUFACTURER
   - 2.10. SHALL BEAR A MINIMUM OF 3-1/2" ON SPECIFIED SUPPORTS. PROVIDE FULL DEPTH SOLID BLOCKING AT ALL BEARING POINTS
   - 2.11. SHALL BE NAILED IN ACCORDANCE WITH MANUFACTURER'S SPECIFICATIONS. UNLESSSS OTHERWISE APPROVED, NAILING INTO THE TOP EDGE SHALL NOT BE SPACED ANY CLOSER THAN:
     - 2.11.1. 16D 6"
     - 2.11.2. 10D 4"
     - 2.11.3. 8D 3"
     - 2.11.4. WHEN NAILING MUST BE REDUCED, STAGGER ROWS A MINIMUM OF 1/2" APART WHILE MAINTAINING PROPER EDGE DISTANCES
   - 2.12. SHALL BE, WHEN COMPRISED OF MULTIPLE MEMBERS, CONNECTED WITH 16D NAIL, 1/2" BOLTS OR 1/4" LAG SCREWS IN ACCORDANCE WITH MANUFACTURER'S SPECIFICATIONS.
   - 2.13. SHALL NOT BE CUT, NOTCHED OR DRILLED WITHOUT SPECIFIC WRITTEN APPROVAL OF THE ENGINEER.
3. PARALLEL STRAND LUMBER (PSL):
   - 3.1. SHALL BE 2-1/2" MINIMUM THICKNESS WITH THE FOLLOWING MINIMUM PROPERTIES:
     - 3.1.1. E = 2000 KSI
     - 3.1.2. FB = 2900 PSI
     - 3.1.3. FV = 290 PSI
     - 3.1.4. FC (PARALLEL) = 2900 PSI
     - 3.1.5. FC (PERP.) = 750 PSI
     - 3.1.6. FT (PARALLEL) = 2025 PSI
     - 3.1.7. SPECIFIC GRAVITY = 0.50
   - 3.2. SHALL BE FABRICATED BY AN APPROVED MANUFACTURER
   - 3.3. SHALL BEAR A MINIMUM OF 3-1/2" ON SPECIFIED SUPPORTS. PROVIDE FULL DEPTH SOLID BLOCKING AT ALL BEARING POINTS
   - 3.4. SHALL BE NAILED IN ACCORDANCE WITH MANUFACTURER'S SPECIFICATIONS. UNLESS OTHERWISE APPROVED, NAILING SHALL NOT BE SPACED ANY CLOSER THAN:
     - 3.4.1. NARROW FACE: 6" FOR 16D COMMON, 4" FOR 10D COMMON, AND 3" FOR 8D COMMON
     - 3.4.2. WIDE FACE: 8" FOR 16D COMMON, 6" FOR 10D & 8D COMMON
     - 3.4.3. WHEN NAILING MUST BE REDUCED, STAGGER ROWS A MINIMUM OF 1/2" APART WHILE MAINTAINING PROPER EDGE DISTANCES
   - 3.5. SHALL NOT BE CUT, NOTCHED OR DRILLED WITHOUT SPECIFIC WRITTEN APPROVAL OF THE ENGINEER.
4. PLYWOOD I JOISTS:
   - 4.1. TYPE AND MANUFACTURER SHALL BE CLEARLY NOTED ON THE PLANS. SUBSTITUTIONS SHALL NOT BE PERMITTED WITHOUT PRIOR APPROVAL OF THE ENGINEER.
   - 4.2. SHALL BE INSTALLED IN ACCORDANCE WITH APPLICABLE CODE APPROVALS AND MANUFACTURER'S SPECIFICATIONS.
   - 4.3. SHALL BEAR A MINIMUM OF 1-3/4" AT ALL END SUPPORTS, AND 3-1/2" AT INTERMEDIATE SUPPORTS. PROVIDE FULL DEPTH SOLID BLOCKING AT ALL BEARING POINTS.
   - 4.4. SHALL BE INSTALLED WITH INTERMEDIATE BLOCKING OR BRIDGING AS SPECIFIED BY THE MANUFACTURER. ONLY OMIT INTERMEDIATE BLOCKING WHEN SPECIFICALLY ALLOWED BY THE MANUFACTURER.
   - 4.5. SHALL NOT BE CUT, NOTCHED OR DRILLED WITHOUT SPECIFIC WRITTEN APPROVAL OF THE ENGINEER.

TRUSSES

1. REFER TO THE STRUCTURAL AND ARCHITECTURAL PLANS FOR ADDITIONAL DESIGN LOADS AND CONDITIONS. BOTTOM CHORDS SHALL BE DESIGNED TO RESIST A MINIMUM CEILING LIVE LOAD OF 10 PSF.
2. TRUSS CALCULATIONS AND DETAILS SHALL BE SUBMITTED TO THE ARCHITECT/ENGINEER AND THE BUILDING DEPARTMENT FOR REVIEW AND APPROVAL PRIOR TO FABRICATION.
3. ALL TRUSSES SHALL BE FABRICATED IN THE SHOP OF A LICENSED FABRICATOR APPROVED BY THE GOVERNING BUILDING DEPARTMENT.
4. EACH TRUSS SHALL BE LEGIBLY BRANDED, MARKED OR OTHERWISE HAVE PERMANENTLY AFFIXED THERETO THE FOLLOWING INFORMATION LOCATED WITHIN 2 FEET OF THE CENTER OF THE SPAN ON THE FACE OF THE BOTTOM CHORD:
   - 4.1. IDENTITY OF THE COMPANY MANUFACTURING THE TRUSS
   - 4.2. THE DESIGN LOAD, AND
   - 4.3. THE SPACING OF THE TRUSSES.
5. WALLS:
   - 5.1. TRUSSES SHALL BEAR ON EXTERIOR WALLS ONLY (UON).
   - 5.2. ALL INTERIOR WALLS SHALL BE NON-BEARING (UON).
   - 5.3. ALL APPROVED INTERIOR BEARING LOCATIONS SHALL BE SPECIFICALLY NOTED ON THE STRUCTURAL PLANS.
6. BEARING:
   - 6.1. SECURING OF BEARING WALLS (UON) TRUSSES SHALL BE SECURED AT ALL BEARING POINTS WITH SIMPSON SEISMIC ANCHORS (E.G. H1).
   - 6.2. INTERIOR NON-BEARING WALLS SHALL BE ISOLATED FROM THE TRUSSES WITH SIMPSON TRUSS CLIPS (E.G. STC, DTC, HTC4) OR APPROVED EQUAL.
   - 6.3. TRUSSES TO BE MANUFACTURED WITH NECESSARY CAMBER TO ACCOUNT FOR DEAD LOAD DEFLECTIONS AND ELIMINATE ACCIDENTAL BEARING ON INTERIOR NON-BEARING WALLS.
7. BLOCKING AND BRACING SHALL BE INSTALLED PER MANUFACTURER'S RECOMMENDATIONS. AS A MINIMUM, THE TRUSSES SHALL BE BLOCKED AT THE FOLLOWING LOCATIONS:
   - 7.1. ALL BEARING POINTS
   - 7.2. ALONG RIDGE
8. ERECT TRUSSES ACCORDING TO THE APPROVED SHOP DRAWINGS. LIFT MEMBERS ONLY AT DESIGNATED LIFT POINTS. PROVIDE ERECTION BRACING TO KEEP THE MEMBERS STRAIGHT AND PLUMB AS REQUIRED TO ASSURE ADEQUATE LATERAL SUPPORT FOR INDIVIDUAL MEMBERS AND THE ENTIRE SYSTEM UNTIL THE SHEATHING IS APPLIED.

SPECIAL INSPECTION REQUIREMENTS

1. THE GENERAL CONTRACTOR IS RESPONSIBLE FOR SCHEDULING AND THE COORDINATION INVOLVED IN THE EXECUTION OF THE FOLLOWING INSPECTIONS. REQUESTS FOR INSPECTIONS SHALL BE MADE NO LATER THAN 48 HOURS PRIOR TO THEIR NECESSITY.
2. IT IS THE RESPONSIBILITY OF THE GENERAL CONTRACTOR TO INSURE THAT THE FOLLOWING ELEMENTS ARE VISIBLE AND AVAILABLE FOR INSPECTION:
   - 2.1. EPOXY ANCHORS
   - 2.2. WELDING (REFER TO STRUCTURAL STEEL SECTION FOR SPECIFIC REQUIREMENTS)
   - 2.3. ALL BOLTED CONNECTIONS EXCEPT F1554 GRADE 36 BOLTS
3. A PRE-CONSTRUCTION MEETING INCLUDING THE SPECIAL INSPECTOR, ENGINEER OF RECORD (EOR), ARCHITECT RESPONSIBLE FOR THE STRUCTURAL OBSERVATIONS, THE CONTRACTOR, AND ALL APPROPRIATE SUBCONTRACTORS SHALL BE HELD TO REVIEW THE DETAILS OF THE STRUCTURAL SYSTEM TO BE STRUCTURALLY OBSERVED.
4. DURING THE COURSE OF CONSTRUCTION THE SPECIAL INSPECTOR SHALL VISUALLY REVIEW THE STRUCTURAL ELEMENTS FOR GENERAL CONFORMANCE WITH THE APPROVED PLANS. ANY OBSERVED DEFICIENCIES SHALL HE REPORTED IN WRITING TO THE OWNER'S REPRESENTATIVE, TO THE CONTRACTOR, AND TO THE BUILDING DEPARTMENT.
5. UPON COMPLETION OF THE APPLICABLE SHEARWALLS AND/OR ANCHORAGE SYSTEM AND PRIOR TO COVERING THE SHEARWALL/ANCHORAGE SYSTEM, THE SPECIAL INSPECTOR SHALL SUBMIT A LETTER TO THE EOR AND BLDG. DEPARTMENT WITH HIS/HER SIGNATURE ATTESTING TO (1) THE DATES ON WHICH VISUAL REVIEWS WERE CONDUCTED, (2) DEFICIENCIES OBSERVED, AND (3) CORRECTIONS TAKEN. THE LETTER SHALL CERTIFY THAT ALL REPORTED DEFICIENCIES WHICH, TO THE BEST OF THE OBSERVER'S KNOWLEDGE, HAVE BEEN RESOLVED.
6. PRIOR TO COVERING THE WORK, THE SHEARWALLS AND/OR ANCHORAGE SYSTEM SHALL BE INSPECTED AND APPROVED BY THE DEPARTMENT INSPECTION STAFF ASSIGNED TO THE PROJECT. SUCH APPROVAL BY THE DEPARTMENT IS REQUIRED PRIOR TO COVERING. THE SPECIAL INSPECTOR IS NOT AUTHORIZED TO APPROVE THE COVERING OF THE SHEARWALLS OR ANCHORAGE SYSTEM. THE OBSERVATIONS OF THE SPECIAL INSPECTOR ARE ADVISORY ONLY AND THEY DO NOT IN ANY WAY BIND THE INSPECTOR OR CONSTITUTE A CERTIFICATION THAT THE SHEARWALLS WILL PASS DEPARTMENT INSPECTION.

ENGINEERING
239-4151
John A. Kudla
Civil Engineering & Structural Design
R.C.E. #50652
610 10th ST. UNIT 'A' PASO ROBLES, CA.

PLAN PREPARED FOR:

KIRK & CARRIE ALLEN
LOT 106 TRACT 1990-2
PASO ROBLES, CA 93446

REVISION LOG

REV.	DESCRIPTION	DATE

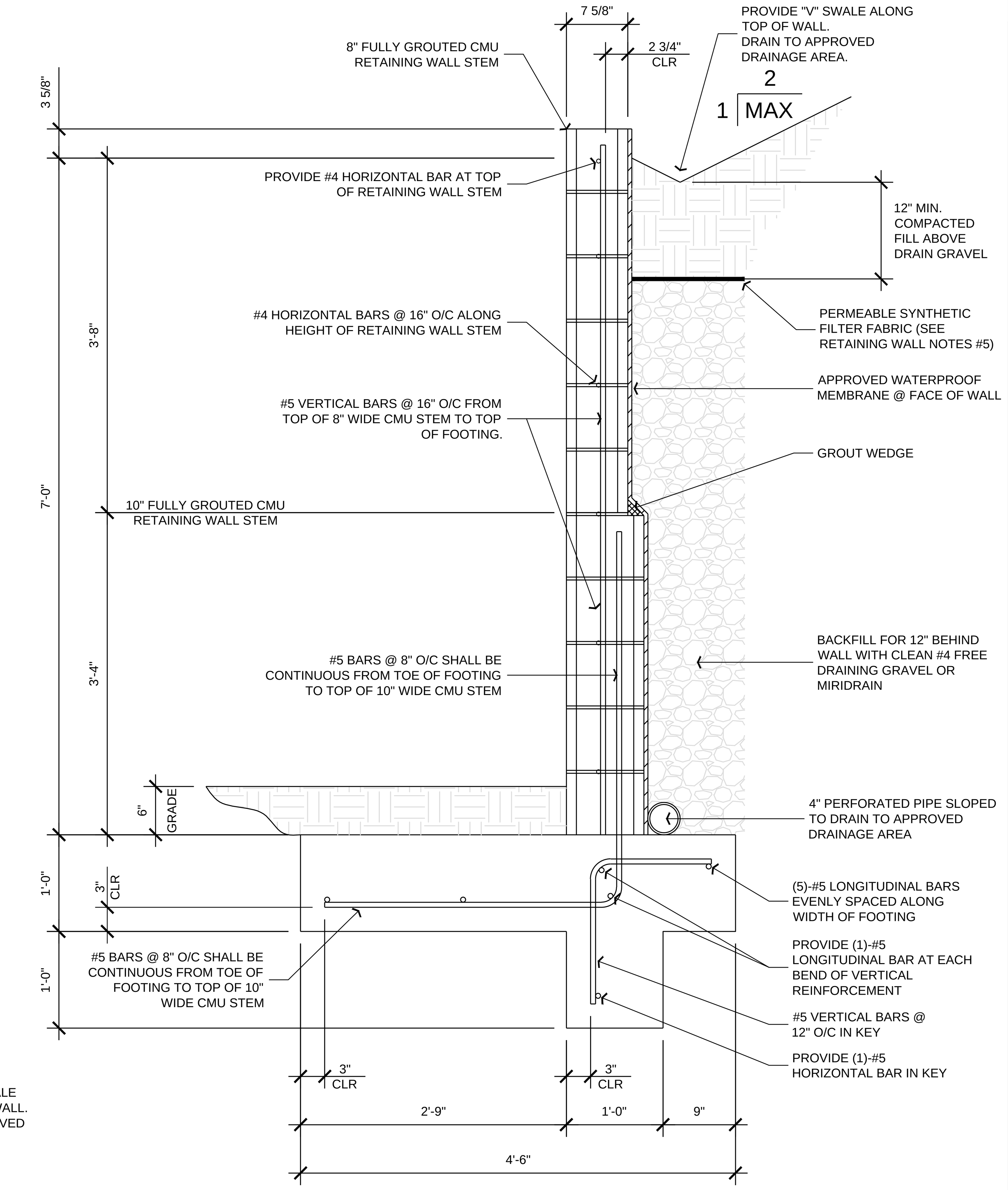
PROJECT NO. ----
FILE NAME SP-1 STRUCTURAL SPECIFICATIONS.DWG
DRAWN BY JJK
DATE 3/31/2017 8:01 AM
SHEET TITLE:

STRUCTURAL SPECIFICATIONS

SHEET NUMBER:

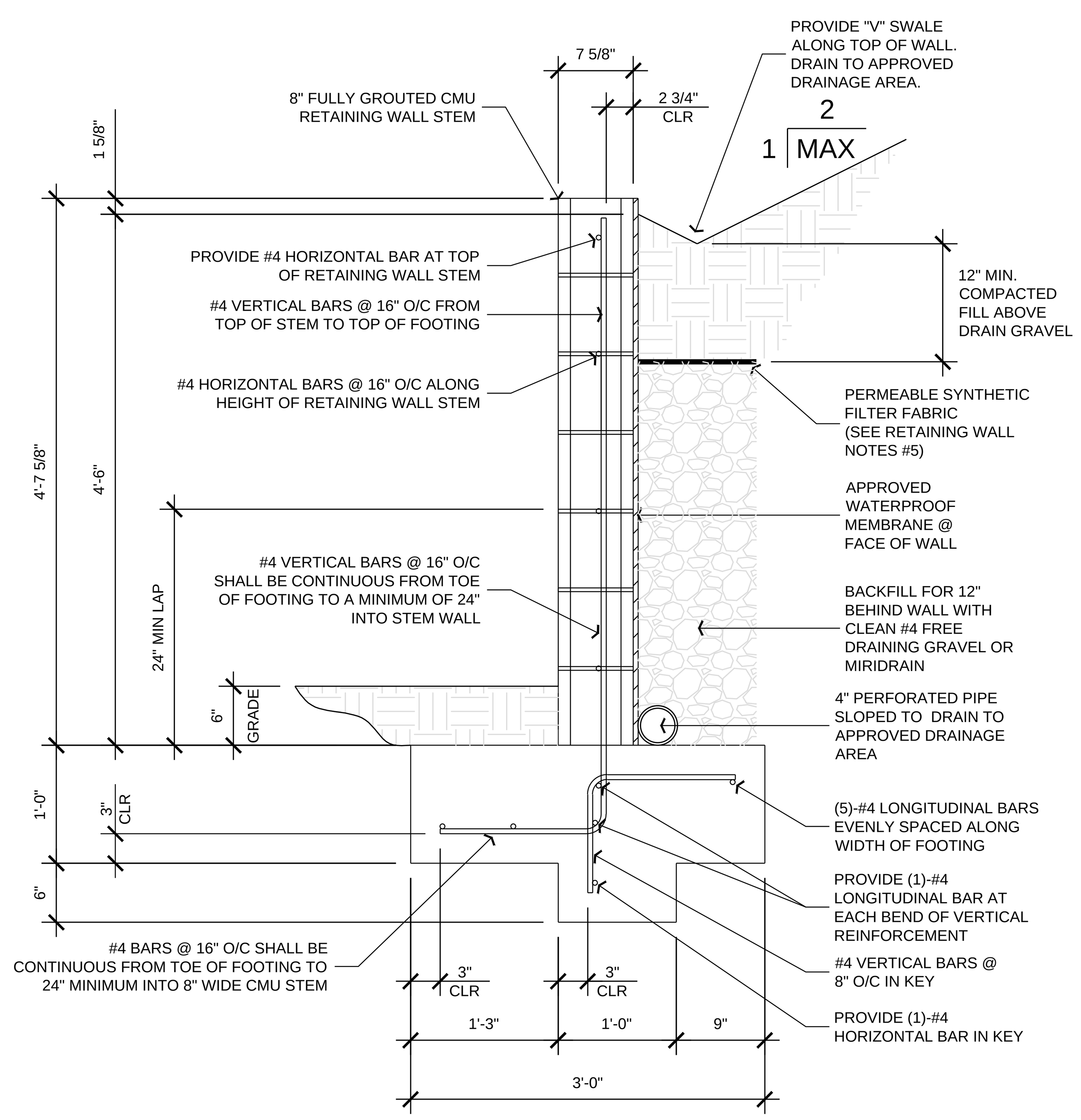
SP-1

\\jbdrafting\projects\capps, Devon\lOT#106\LOT 106\Sheets\SP-1 STRUCTURAL SPECIFICATIONS.dwg Johnny Kudla 2/14/2017 11:57:11 AM



R6 6'-6" RETAINING WALL DETAIL

SCALE: 1" = 1'-0"



R4 4'-6" RETAINING WALL DETAIL

SCALE: 1" = 1'-0"

MASONRY NOTES & REQUIRMENTS:

CONCRETE BLOCK	ASTM C90. Grade N, Type I, Normal Wt, f'm=1500psi.
MORTAR	Minimum Compressive Strength of 2500 psi at 28 days. Slump to be maintained at 2 ½" to 3". ASTM C270, Type M, with Type II Portland Cement. Proportions: (By volume) 1 part Portland Cement (ASTM C150). ¼ part Hydrated Lime (ASTM C150). 2 ¼ to 3 parts sand (ASTM C144).
GROUT	Minimum Compressive strength of 2000 psi at 28 days. Slump to be minimum 8" to 10" with 3/8" Pea Gravel. ASTM C476, with Type I or II Portland Cement. Proportions: (By volume) 1 part Portland Cement (ASTM C150). 1 to 2 parts Pea Gravel. 2 ¼ to 3 parts sand. Placement of all grout to be per the requirements set forth in CBC. Solid grout all cells (with or without rebar). Low Lift Grouting: Blocking to be grouted shall not exceed 4'-0" in height, and shall be grouted in one continuous operation. All grout shall be vibrated when placed, and a second time appx. ½ hr after placing. When grouting is stopped for more than one hour, keep grout cold joint minimum 1 ½" below the top of the blocks.
WATER	All water must be potable, clean and free of deleterious amounts of acid, alkalis or organic materials.
CONSTRUCTION	All construction methodology shall conform to the requirements of the 2010 CBC. Bond shall be provided by lapping units in successive vertical courses (Running Bond). All masonry walls in excess of 10'-0" in height shall be braced to withstand a wind load of 10 psf, applied perpendicular to wall in either direction during construction. Bracing shall remain in place until the supporting element (roof diaphragm, etc.) is completed and attached.
REBAR	All rebar to conform to ASTM A615. #4 bars & smaller: Grade 40. #5 bars & larger: Grade 60. Adjacent rebar laps to be staggered minimum of 24" Lap lengths: #4: 24" #5: 32" All bars shall be free of loose and flaky rust and scale, grease, or other material, which might affect or impair bond.
INSPECTIONS	Special Inspection, when required on plans or details, shall conform to the 2010 CBC, using the <u>"Unit Strength Method"</u> for determining unit compressive strength.

REQ'D VERIFICATION & INSPECTION OF SOILS

SPECIAL INSPECTIONS SHOULD BE PERFORMED IN ACCORDANCE WITH TABLE 1705.6 BELOW:

VERIFICATION AND INSPECTION TASK	CONTINUOUS DURING TASK LISTED	PERIODICALLY DURING TASK LISTED
VERIFY MATERIAL BELOW FOOTINGS ARE ADEQUATE TO ACHIEVE THE DESIGN BEARING CAPACITY	NO	YES
VERIFY EXCAVATIONS ARE EXTENDED TO PROPER DEPTH AND HAVE REACHED PROPER MATERIAL	NO	YES
PERFORM CLASSIFICATION AND TESTING OF CONTROLLED FILLED MATERIALS	NO	YES
VERIFY USE OF PROPER MATERIALS DENSITIES AND LIFT THICKNESSES DURING PLACEMENT AND COMPACTION OF CONTROLLED FILL	YES	NO
PRIOR TO PLACEMENT OF CONTROLLED FILL, OBSERVE SUBGRADE AND VERIFY THAT THE SITE HAS BEEN PREPARED PROPERLY	NO	YES

CONSULTANTS

<u>GEOTECHNICAL ENGINEER</u>
HALLIN GEOTECHNICAL SERVICES, LLC.
P.O. BOX 1897
ATASCADERO, CA 93423
805.975.7361

<u>SPECIAL INSPECTION</u>
MID-COAST GEOTECHNICAL ENGINEERING, INC
P.O. BOX 2220
ATASCADERO, CA 93422
805.674.2673

<u>STRUCTURAL DESIGN & CIVIL ENGINEERING</u>
JK ENGINEERING
610 10TH ST, STE A
PASO ROBLES, CA 93446
805.239.4151

GENERAL SPECIFICATIONS FOR CONCRETE :

1. All concrete shall have 2500 psi minimum compressive strength at 28 days and shall be normal weight. (U.O.N.)
2. All concrete work shall comply with ACI building code (ACI 318)
3. The maximum concrete slump shall be : Slabs .... 3" (plus or minus 1")
   All other work ... 4" (plus or minus 1")
4. The minimum cement content shall be 5 sacks per cubic yard and shall be Portland Cement, Type I or II, low alkali, per ASTM C-150.
5. Any water reducing agents added shall be used to reduce the water/cement ratio. Admixtures shall be approved by the Engineer.
6. Aggregate shall conform to ASTM C-33. Maximum aggregate size shall be 1" (U.O.N.) Use 3/4" aggregate for slabs on grade.
7. Concrete Placement :
   A. Concrete shall not free-fall more than five (5) feet. Use tremie pump or other approved methods.
   B. Vibrate all concrete (including slabs) as it is placed with a mechanical vibrator operated by experienced personnel. Reinforcing and forms shall not be vibrated.
8. Curing : Freshly deposited concrete shall be protected from premature drying and excessively hot or cold temperatures, and shall be maintained with minimal moisture loss at a relatively constant temperature for the period of time necessary for the hydration of the cement. (typically 7 days)
9. Unless specifically detailed or noted otherwise, construction and control joints shall be provided on all concrete slabs, and shall be located such that the area within joints does not exceed 400 square feet, and is roughly square without interior corners.

GENRAL SPECIFICATIONS FOR REINFORCING :

1. Reinforcing steel shall be clean of rust, grease, or other material likely to impair bond.
2. All reinforcing steel to be continuous and lapped (with staggered splices at adjacent bars) minimum 24" at splices (#4 bars), 42" at splices (#5 bars). Reinforcing bars shall have minimum bend radius of 4 times the bar diameter. Bars shall not be heated to facilitate bending. Once bent, steel shall not be straightened.
3. Reinforcing bars to be deformed bars conforming ASTM A-615:
   # 3, # 4 .... Grade 40 # 5 & larger .... Grade 60
4. All reinforcing steel, anchor bolts, and foundation hardware shall be located in the formwork and held firmly in place prior to and during concrete placement by means of wire supports.
5. Concrete cover is required as follows over reinforcing :
   3" .... where concrete is exposed to and cast against earth
   2" .... where concrete is exposed to earth but cast against formwork
   1-1/2" .... where concrete is not exposed to earth or weather
6. Reinforcing steel shall not be welded, unless specifically notes on the structural drawings. If allowed, welding shall conform to CBC Standards.

RETAINING WALL DESIGN VALUES

THE LISTED DESIGN VALUES BELOW FROM THE PROJECT SOILS REPORT WERE USED FOR THE STRUCTURAL DESIGN OF THE RETAINING WALLS FOR THIS PROJECT:

LATERAL PRESSURE	EQUIVALENT FLUID PRESSURE
ACTIVE CASE	49 pcf
AT REST CASE	50 pcf
PASSIVE CASE	400 pcf
MAXIMUM TOE PRESSURE	2400 pcf
COEFFICIENT OF SLIDING FRICTION	0.50

SOIL NOTE

SOILS EXPANSION INDEX :	VERY LOW
ORIGINAL REPORT:	SL02830-3
BY:	GEOSOLUTIONS, INC.
DATED:	OCTOBER 9, 2002
SOILS UPDATE LETTER:	H-16996
BY:	HALLIN GEOTECHNICAL SERVICES, LLC.
DATED:	DECEMBER 5, 2016

THE SOILS REPORT REFERENCED IS PART OF THESE PLANS AND ALL RECOMMENDATIONS THERE IN SHALL BE COMPLIED WITH.

RETAINING WALL NOTES PER SOILS REPORT

1. THE PRESSURES LISTED WERE BASED ON THE ASSUMPTION THAT BACKFILL SOILS WILL BE COMPACTED TO 90% OF MAXIMUM DRY DENSITY AS DETERMINED BY THE ASTM D 1557 TEST METHOD.
2. A BACK DRAIN OR AN EQUIVALENT SYSTEM OF BACKFILL DRAINAGE SHOULD BE INCORPORATED INTO THE RETAINING WALL DESIGN. BACKFILL IMMEDIATELY BEHIND THE RETAINING STRUCTURE SHOULD BE A FREE-DRAINING GRANULAR MATERIAL. ALTERNATIVELY, THE BACK OF THE WALL COULD BE LINED WITH A GEODRAIN SYSTEM.
3. COMPACTION ON THE UPHILL SIDE OF THE WALL WITHIN A HORIZONTAL DISTANCE EQUAL TO ONE WALL HEIGHT SHOULD BE PERFORMED BY HAND-OPERATED OR OTHER LIGHTWEIGHT COMPACTION EQUIPMENT. THIS IS INTENDED TO REDUCE POTENTIAL "LOCKED-IN" LATERAL PRESSURES CAUSED BY COMPACTION WITH HEAVY GRADING EQUIPMENT.
4. WATER SHOULD NOT BE ALLOWED TO POND NEAR THE TOP OF THE WALL. TO ACCOMPLISH THIS, THE FINAL BACKFILL SITE GRADE SHOULD BE SUCH THAT ALL WATER IS DIVERTED AWAY FROM THE RETAINING WALL.
5. TO REDUCE INFILTRATION OF THE SOIL INTO THE DRAIN GRAVEL, THE GRAVEL SHOULD BE ENCAPSULATED IN A PERMEABLE GEOTEXTILE FABRIC. A SUITABLE PERMEABLE GEOTEXTILE FABRIC, SUCH AS NON-WOVEN NEEDLE-PUNCHED MIRAFI 140N OR EQUAL, MAY BE UTILIZED AND SHOULD CONFORM TO CALTRANS STANDARD SPECIFICATION 88-1.03 FOR UNDERDRAINS.
6. CONTRACTOR SHALL PROVIDE 6" OF FILL OVER TOE OF RETAINING WALL FOOTING. ALL FILL SHALL BE BROUGHT TO A MOISTURE CONTENT NEAR OPTIMUM MOISTURE CONTENT, AND COMPACTED TO A MINIMUM OF 90 PERCENT OF THE MAXIMUM DENSITY (ASTM D1557).

<u>NOTE:</u> FOR ALL OTHER INFORMATION NOT STATED HERE THE OWNER / CONTRACTOR SHALL READ THE PROJECT SOILS REPORT PRIOR TO START OF CONSTRUCTION. ANY QUESTIONS REGARDING THE SOILS REPORT SHALL BE BROUGHT TO THE ATTENTION OF HALLIN GEOTECHNICAL SERVICES, LLC.

JK ENGINEERING
239-4151
John A. Kudla
Civil Engineering & Structural Design
R.C.E. #50652
610 10th ST. UNIT 'A' PASO ROBLES, CA.

PLAN PREPARED FOR:

KIRK & CARRIE ALLEN
LOT 106 TRACT 1990-2
PASO ROBLES, CA 93446

REVISION LOG

REV.	DESCRIPTION	DATE

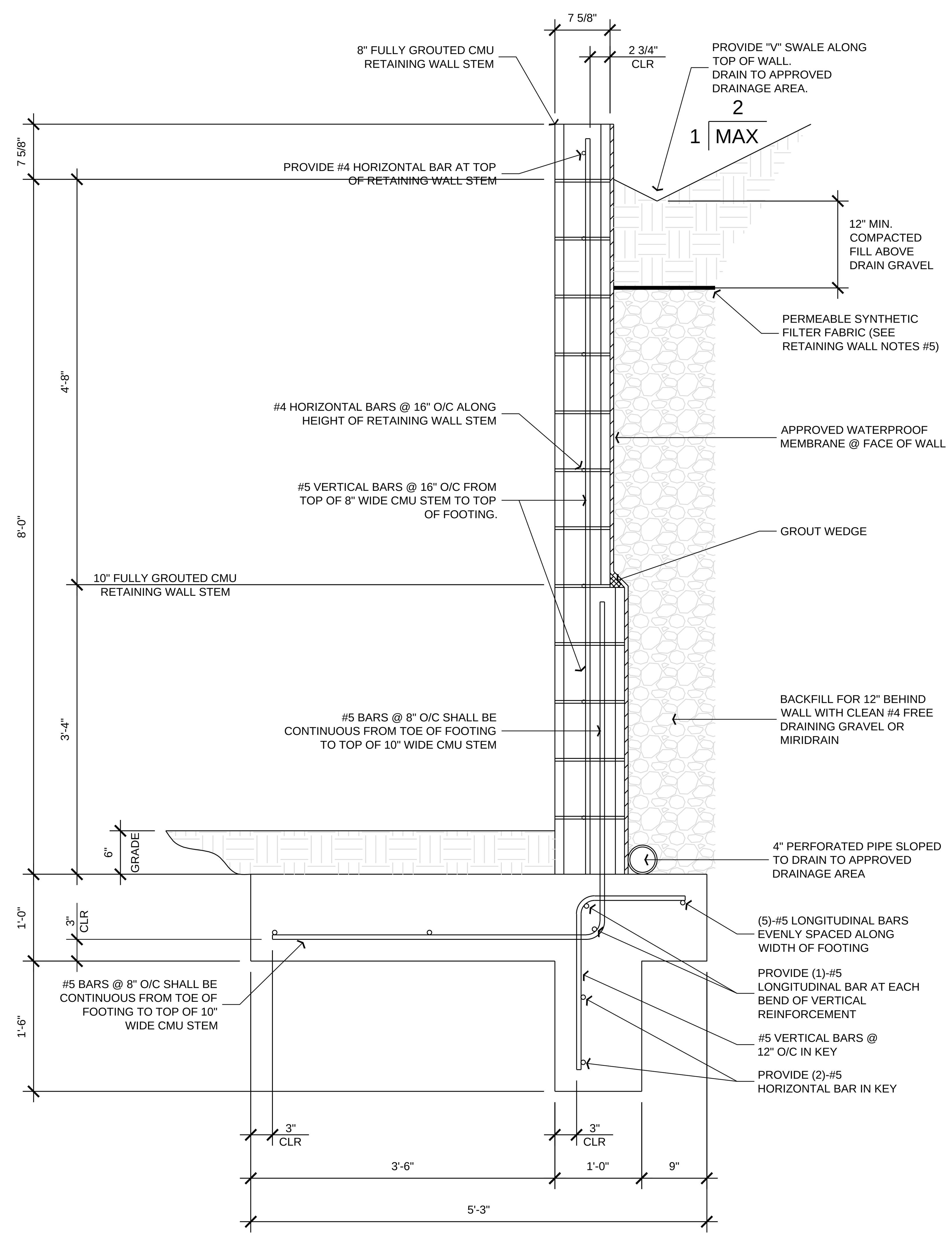
PROJECT NO.	---
FILE NAME	CAPPS-LOT-106 STRUCTURAL.DWG
DRAWN BY	JJK
DATE	3/31/2017 8:01 AM

SHEET TITLE:

RETAINING WALLS

SHEET NUMBER:

R-1.1



R7 7'-6" RETAINING WALL DETAIL

SCALE: 1" = 1'-0"

MASONRY NOTES & REQUIRMENTS:

CONCRETE BLOCK — ASTM C90. Grade N, Type I, Normal Wt, f'm=1500psi.

MORTAR — Minimum Compressive Strength of 2500 psi at 28 days.
Slump to be maintained at 2 ½" to 3".
ASTM C270, Type M, with Type II Portland Cement.
Proportions: (By volume)
1 part Portland Cement (ASTM C150).
¼ part Hydrated Lime (ASTM C150).
2 ¼ to 3 parts sand (ASTM C144).

GROUT — Minimum Compressive strength of 2000 psi at 28 days.
Slump to be minimum 8" to 10" with 3/8" Pea Gravel.
ASTM C476, with Type I or II Portland Cement.
Proportions: (By volume)
1 part Portland Cement (ASTM C150).
1 to 2 parts Pea Gravel.
2 ¼ to 3 parts sand.
Placement of all grout to be per the requirements set forth in CBC.
Solid grout all cells (with or without rebar).
Low Lift Grouting: Blocking to be grouted shall not exceed 4'-0" in height, and shall be grouted in one continuous operation. All grout shall be vibrated when placed, and a second time appx. ½ hr after placing.
When grouting is stopped for more than one hour, keep grout cold joint minimum 1 ½" below the top of the blocks.

WATER — All water must be potable, clean and free of deleterious amounts of acid, alkalis or organic materials.

CONSTRUCTION — All construction methodology shall conform to the requirements of the 2010 CBC.
Bond shall be provided by lapping units in successive vertical courses (Running Bond).
All masonry walls in excess of 10'-0" in height shall be braced to withstand a wind load of 10 psf, applied perpendicular to wall in either direction during construction. Bracing shall remain in place until the supporting element (roof diaphragm, etc.) is completed and attached.

REBAR — All rebar to conform to ASTM A615.
#4 bars & smaller: Grade 40.
#5 bars & larger: Grade 60.
Adjacent rebar laps to be staggered minimum of 24"
Lap lengths: #4: 24"
#5: 32"

All bars shall be free of loose and flaky rust and scale, grease, or other material, which might affect or impair bond.

INSPECTIONS — Special Inspection, when required on plans or details, shall conform to the 2010 CBC, using the "Unit Strength Method" for determining unit compressive strength.

REQ'D VERIFICATION & INSPECTION OF SOILS

SPECIAL INSPECTIONS SHOULD BE PERFORMED IN ACCORDANCE WITH TABLE 1705.6 BELOW:

VERIFICATION AND INSPECTION TASK	CONTINUOUS DURING TASK LISTED	PERIODICALLY DURING TASK LISTED
VERIFY MATERIAL BELOW FOOTINGS ARE ADEQUATE TO ACHIEVE THE DESIGN BEARING CAPACITY	NO	YES
VERIFY EXCAVATIONS ARE EXTENDED TO PROPER DEPTH AND HAVE REACHED PROPER MATERIAL	NO	YES
PERFORM CLASSIFICATION AND TESTING OF CONTROLLED FILLED MATERIALS	NO	YES
VERIFY USE OF PROPER MATERIALS DENSITIES AND LIFT THICKNESSES DURING PLACEMENT AND COMPACTION OF CONTROLLED FILL	YES	NO
PRIOR TO PLACEMENT OF CONTROLLED FILL, OBSERVE SUBGRADE AND VERIFY THAT THE SITE HAS BEEN PREPARED PROPERLY	NO	YES

CONSULTANTS

GEOTECHNICAL ENGINEER
HALLIN GEOTECHNICAL SERVICES, LLC.
P.O. BOX 1897
ATASCADERO, CA 93423
805.975.7361

SPECIAL INSPECTION
MID-COAST GEOTECHNICAL ENGINEERING, INC
P.O. BOX 2220
ATASCADERO, CA 93422
805.674.2673

STRUCTURAL DESIGN & CIVIL ENGINEERING
JK ENGINEERING
610 10TH ST, STE A
PASO ROBLES, CA 93446
805.239.4151

GENERAL SPECIFICATIONS FOR CONCRETE :

1. All concrete shall have 2500 psi minimum compressive strength at 28 days and shall be normal weight. (U.O.N.)
2. All concrete work shall comply with ACI building code (ACI 318)
3. The maximum concrete slump shall be : Slabs .... 3" (plus or minus 1") All other work ... 4" (plus or minus 1")
4. The minimum cement content shall be 5 sacks per cubic yard and shall be Portland Cement, Type I or II, low alkali, per ASTM C-150.
5. Any water reducing agents added shall be used to reduce the water/cement ratio. Admixtures shall be approved by the Engineer.
6. Aggregate shall conform to ASTM C-33. Maximum aggregate size shall be 1" (U.O.N.) Use 3/4" aggregate for slabs on grade.
7. Concrete Placement :
   A. Concrete shall not free-fall more than five (5) feet. Use tremie pump or other approved methods.
   B. Vibrate all concrete (including slabs) as it is placed with a mechanical vibrator operated by experienced personnel. Reinforcing and forms shall not be vibrated.
8. Curing : Freshly deposited concrete shall be protected from premature drying and excessively hot or cold temperatures, and shall be maintained with minimal moisture loss at a relatively constant temperature for the period of time necessary for the hydration of the cement. (typically 7 days)
9. Unless specifically detailed or noted otherwise, construction and control joints shall be provided on all concrete slabs, and shall be located such that the area within joints does not exceed 400 square feet, and is roughly square without interior corners.

GENRAL SPECIFICATIONS FOR REINFORCING :

1. Reinforcing steel shall be clean of rust, grease, or other material likely to impair bond.
2. All reinforcing steel to be continuous and lapped (with staggered splices at adjacent bars) minimum 24" at splices (#4 bars), 42" at splices (#5 bars). Reinforcing bars shall have minimum bend radius of 4 times the bar diameter. Bars shall not be heated to facilitate bending. Once bent, steel shall not be straightened.
3. Reinforcing bars to be deformed bars conforming ASTM A-615:
   # 3, # 4 .... Grade 40 # 5 & larger .... Grade 60
4. All reinforcing steel, anchor bolts, and foundation hardware shall be located in the formwork and held firmly in place prior to and during concrete placement by means of wire supports.
5. Concrete cover is required as follows over reinforcing :
   3" .... where concrete is exposed to and cast against earth
   2" .... where concrete is exposed to earth but cast against formwork
   1-1/2" .... where concrete is not exposed to earth or weather
6. Reinforcing steel shall not be welded, unless specifically notes on the structural drawings. If allowed, welding shall conform to CBC Standards.

RETAINING WALL DESIGN VALUES

THE LISTED DESIGN VALUES BELOW FROM THE PROJECT SOILS REPORT WERE USED FOR THE STRUCTURAL DESIGN OF THE RETAINING WALLS FOR THIS PROJECT:

LATERAL PRESSURE	EQUIVALENT FLUID PRESSURE
ACTIVE CASE	49 pcf
AT REST CASE	50 pcf
PASSIVE CASE	400 pcf
MAXIMUM TOE PRESSURE	2400 pcf
COEFFICIENT OF SLIDING FRICTION	0.50

SOIL NOTE

SOILS EXPANSION INDEX :	VERY LOW
ORIGINAL REPORT:	SL02830-3
BY:	GEOSOLUTIONS, INC.
DATED:	OCTOBER 9, 2002
SOILS UPDATE LETTER:	H-16996
BY:	HALLIN GEOTECHNICAL SERVICES, LLC.
DATED:	DECEMBER 5, 2016

THE SOILS REPORT REFERENCED IS PART OF THESE PLANS AND ALL RECOMMENDATIONS THERE IN SHALL BE COMPLIED WITH.

RETAINING WALL NOTES PER SOILS REPORT

1. THE PRESSURES LISTED WERE BASED ON THE ASSUMPTION THAT BACKFILL SOILS WILL BE COMPACTED TO 90% OF MAXIMUM DRY DENSITY AS DETERMINED BY THE ASTM D 1557 TEST METHOD.
2. A BACK DRAIN OR AN EQUIVALENT SYSTEM OF BACKFILL DRAINAGE SHOULD BE INCORPORATED INTO THE RETAINING WALL DESIGN. BACKFILL IMMEDIATELY BEHIND THE RETAINING STRUCTURE SHOULD BE A FREE-DRAINING GRANULAR MATERIAL. ALTERNATIVELY, THE BACK OF THE WALL COULD BE LINED WITH A GEODRAIN SYSTEM.
3. COMPACTION ON THE UPHILL SIDE OF THE WALL WITHIN A HORIZONTAL DISTANCE EQUAL TO ONE WALL HEIGHT SHOULD BE PERFORMED BY HAND-OPERATED OR OTHER LIGHTWEIGHT COMPACTION EQUIPMENT. THIS IS INTENDED TO REDUCE POTENTIAL "LOCKED-IN" LATERAL PRESSURES CAUSED BY COMPACTION WITH HEAVY GRADING EQUIPMENT.
4. WATER SHOULD NOT BE ALLOWED TO POND NEAR THE TOP OF THE WALL. TO ACCOMPLISH THIS, THE FINAL BACKFILL SITE GRADE SHOULD BE SUCH THAT ALL WATER IS DIVERTED AWAY FROM THE RETAINING WALL.
5. TO REDUCE INFILTRATION OF THE SOIL INTO THE DRAIN GRAVEL, THE GRAVEL SHOULD BE ENCAPSULATED IN A PERMEABLE GEOTEXTILE FABRIC. A SUITABLE PERMEABLE GEOTEXTILE FABRIC, SUCH AS NON-WOVEN NEEDLE-PUNCHED MIRAFI 140N OR EQUAL, MAY BE UTILIZED AND SHOULD CONFORM TO CALTRANS STANDARD SPECIFICATION 88-1.03 FOR UNDERDRAINS.
6. CONTRACTOR SHALL PROVIDE 6" OF FILL OVER TOE OF RETAINING WALL FOOTING. ALL FILL SHALL BE BROUGHT TO A MOISTURE CONTENT NEAR OPTIMUM MOISTURE CONTENT, AND COMPACTED TO A MINIMUM OF 90 PERCENT OF THE MAXIMUM DENSITY (ASTM D1557).

NOTE: FOR ALL OTHER INFORMATION NOT STATED HERE THE OWNER / CONTRACTOR SHALL READ THE PROJECT SOILS REPORT PRIOR TO START OF CONSTRUCTION. ANY QUESTIONS REGARDING THE SOILS REPORT SHALL BE BROUGHT TO THE ATTENTION OF HALLIN GEOTECHNICAL SERVICES, LLC.

JK ENGINEERING
239-4151
John A. Kudla
Civil Engineering & Structural Design
R.C.E. #50652
610 10th ST. UNIT 'A' PASO ROBLES, CA.

PLAN PREPARED FOR:
KIRK & CARRIE ALLEN
LOT 106 TRACT 1990-2
PASO ROBLES, CA 93446

REVISION LOG

REV.	DESCRIPTION	DATE

PROJECT NO.	—
FILE NAME	CAPPS-LOT-106 STRUCTURAL.DWG
DRAWN BY	JJK
DATE	3/31/2017 8:01 AM

SHEET TITLE:
RETAINING WALL

SHEET NUMBER:
R-2.1