Long Beach Remodel

A Senior Project

Presented to

the Faculty of the Architectual Engineering Department

California Polytechnic State University, San Luis Obispo

In Partial Fulfillment

of the Requirements for the Degree

Bachelor of Science

by

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December, 2016

Summary of Long Beach Remodel

For my senior project, I created a set of plans for a remodel of a single family residence located in Long Beach, California. The project mandate included the following:

1) Create a set of as-built drawings (i.e. existing drawings of the building and site)
2) Work with an architect on a proposed design
3) Produce a set of structural drawings and calculations

The house was built in 1949. The prior owner of the house added a detached three-car garage and converted an existing attached garage into a den. The current owner wanted to demolish the den and build a larger family and dining room, and a more functional kitchen.

A surveyor was hired to identify the two front corners of the lot. Without a survey, it would have been difficult to determine exactly where the property lines were located and thus, how to "set" the house on the lot.

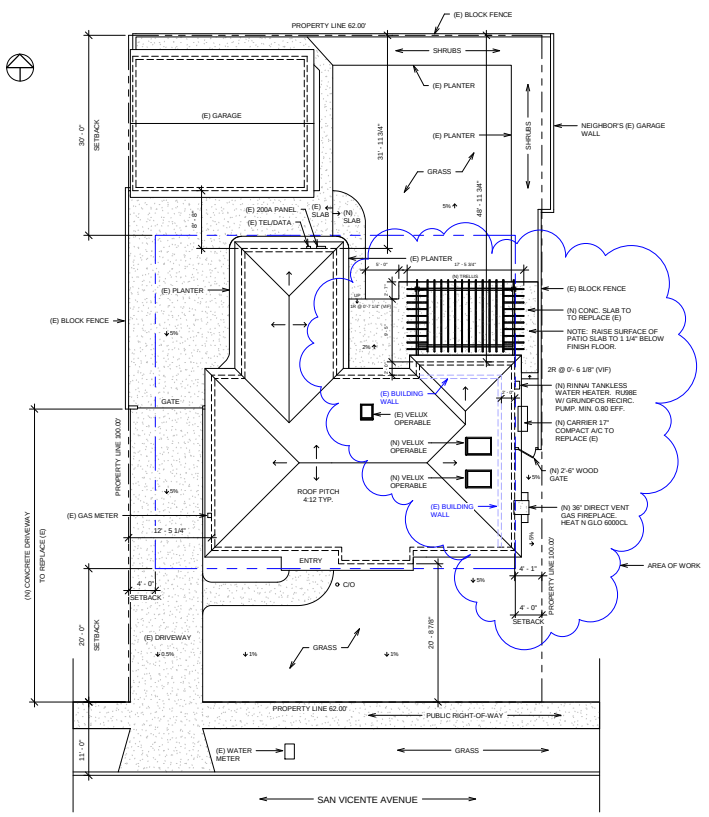
Meeting California's stringent Title 24 Energy Requirements was a challenging aspect of the project, based on the proposed window, glass door, and skylight configuration. Unfortunately, just upgrading the insulation in the floors, walls and ceilings wasn't enough to meet California's Title 24 Energy Requirements. We faced a choice of either having to upgrade the existing windows in the house or converting the existing conventional water heater to a more energy efficient tankless model. Due to more favorable economics, we proceeded with the tankless model.

Another challenge we faced was making sure the new roof would plane in properly with the existing roof. The existing roof was framed with 2x4 members, which were of sufficient strength per code when the house was built in 1949. However, under the current code, roof framing members required more strength. Since the owner wanted to expedite construction, we decided to use roof trusses. This also enabled ceiling heights and eaves to match up, without a great deal of labor.

I decided to pursue this project primarily because I wanted "hands on" experience creating a comprehensive set of construction documents. Wood construction is something I can relate to well given my background and find it to be an aesthetically appealing material. I suspect wood design will be an important part of my focus as an engineer.

The documents that follow include a set of as-built drawings, a proposed design and structural drawings and details. I also included in the package that follows a set of calculations for gravity and lateral loads.

(N) SITE PLAN



1 (N) Site Plan
1/8" = 1'-0"

SECURITY

1. WOOD FLUSH TYPE DOORS SHALL BE 1-3/8" THINK MINIMUM WITH SOLID CORE CONSTRUCTION.

2. GLAZED OPENINGS WITHIN 40" OF THE DOOR LOCK WHEN THE DOOR IS IN THE CLOSED POSITION SHALL BE FLUTE TEMPERED GLASS OR APPROVED BURGLARY RESISTANT MATERIAL, OR SHALL BE PROTECTED BY METAL BARS, SCREENS, OR GRILLS HAVING A MAXIMUM OPENING OF 2".

3. DOOR STOPS OF IN-SWINGING DOOR SHALL BE OF ONE-PIECE CONSTRUCTION WITH THE JAMB OR JOINED BY RABBIT TO THE JAMB.

4. ALL PIN-TYPE HINGES WHICH ARE ACCESSIBLE FROM OUTSIDE THE SECURED AREA WHEN THE DOOR IS CLOSED SHALL HAVE NON REMOVABLE HINGE PINS. IN ADDITION, THEY SHALL HAVE A MINIMUM 1/4" DIAMETER STEEL JAMB STUD WITH 1/4" MINIMUM PROTECTION UNLESS THE HINGES ARE SHAPED TO PREVENT REMOVAL OF THE DOOR IF THE HINGE PINS ARE REMOVED.

5. THE STRIKE PLATE FOOT LATCHES AND THE HOLDING DEVICE FOR PROJECTING DEADBOLTS IN WOOD CONSTRUCTION SHALL BE SECURED TO THE JAMB AND THE WALL FRAMING WITH SCREWS NOT LESS THAN 2 1/2" IN LENGTH.

6. STRAIGHT DEAD BOLTS SHALL HAVE A MINIMUM THROW OF 1" AND AN EMBEDMENT OF NOT LESS THAN 5/8".

7. A HOOK SHAPED OR AN EXPANDIN-LUG DEADBOLT SHALL HAVE A MINIMUM THROW OF 3/4".

8. CYLINDER GUARDS SHALL BE INSTALLED ON ALL CYLINDER LOCKS WHENEVER THE CYLINDER PROJECTS BEYOND THE FACE OF THE DOOR OR IS OTHERWISE ACCESSIBLE TO GRIPPING TOOLS.

9. SLIDING GLASS WINDOWS SHALL BE PROVIDED WITH A DEVICE IN THE UPPER CHANNEL OF THE MOVING PANEL TO PROHIBIT RAISING AND REMOVING OF THE REMOVABLE PANEL IN THE CLOSED OR PARTIALLY OPEN POSITION.

PROJECT DATA

REMODELING PROJECT
LONG BEACH, CA

ZONE: R-1N

OCCUPANCY CLASSIFICATION: R-3

SCOPE OF PROJECT: (N) FAMILY/DINING ROOM ADDITION (88 SQFT); KITCHEN REMODEL

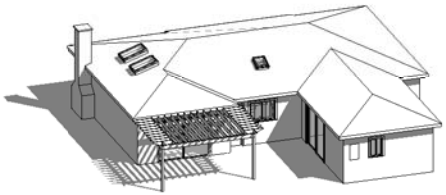
BUILDING CONSTRUCTION TYPE: V

AREA SUMMARY:

(E) FIRST FLOOR:	1411	SQFT
(N) ADDITION	88	SQFT
TOTAL HABITABLE:	1499	SQFT
DETACHED GARAGE	518	SQFT
LOT AREA (APPROXIMATELY):	6200	SQFT
EXISTING LOT COVERAGE:	.31	
PROPOSED LOT COVERAGE:	.33	

VICINITY MAP

3D VIEW



ENERGY REQUIREMENTS

ADDITIONAL NOTES:

1. THE INSULATION INSTALLER AND THE CONTRACTOR SHALL POST A SIGNED CERTIFICATE OF COMPLIANCE IN A CONSPICUOUS LOCATION. THE SIGN SHALL STATE THAT THE INSTALLATION AND MATERIALS CONFORM TO THE APPROPRATE SECTIONS OF THE CALIFORNIA ADMINISTRATIVE CODE, TITLES 20 AND 24 AND SHALL SPECIFY THE MANUFACTURER'S NAME AND MATERIAL IDENTIFICATION, THE INSTALLED R-VALUE, AND WHEN LOOSE FILL IS INSTALLED, SHALL STATE THE MINIMUM INSTALLED WEIGHT PER SQUARE FOOT CONSISTENT WITH THE MANUFACTURER'S LABELED DENSITY FOR THE DESIGNED R-VALUE.

2. DUCT SEALING IS MANDATORY. ALL SUPPLY DUCTS SHALL EITHER BE IN CONDITIONED SPACE, OR HAVE A MINIMUM INSULATION OF R-6.0

ENERGY REQUIREMENTS

1. DOORS AND WINDOWS BETWEEN CONDITIONED AND UNCONDITIONED SPACES SHALL BE FULLY WEATHER-STRIPPED.

2. THE FOLLOWING OPENINGS IN THE EXTERIOR ENVELOPE OF THE BUILDING SHALL BE CAULKED OR OTHERWISE SEALED TO LIMIT INFILTRATION:

A. EXTERIOR JOINTS AROUND WINDOW AND DOOR FRAMES, BETWEEN WALL SOLE PLATES AND FLOORS AND BETWEEN EXTERIOR WALL PANELS.

B. OPENINGS FOR PLUMBING, ELECTRICAL AND GAS LINES IN WALLS, CEILINGS AND FLOORS.

C. OPENINGS IN THE ATTIC, SUCH AS THE POINT WHERE THE CEILING MEETS MASONRY FIREPLACES.

3. EXHAUST FANS SHALL BE PROVIDED WITH BACKDRAFT DAMPERS OR AUTOMATIC DAMPERS.

4. DUCTS SHALL BE CONSTRUCTED, INSTALLED AND INSULATED ACCORDING TO CHAPTER 6 OF THE CALIFORNIA MECHANICAL CODE.

5. THERMOSTATICALLY CONTROLLED HEATING AND COOLING SYSTEMS, EXCEPT ELECTRIC HEAT PUMPS, SHALL HAVE AUTOMATIC THERMOSTAT SET POINTS FOR AT LEAST TWO PERIODS WITHIN 24 HOURS.

6. ALL HEATING, VENTILATING AND AIR CONDITIONING (HVAC) EQUIPMENT SHALL BE CERTIFIED BY THE CALIFORNIA ENERGY COMMISSION.

7. WATER HEATERS SHALL BE CERTIFIED BY THE CALIFORNIA ENERGY COMMISSION.

8. WRAP STORAGE TYPE WATER HEATERS AND STORAGE AND BACKUP TANKS FOR SOLAR WATER SYSTEMS WITH MINIMUM R-12 INSULATION FOR EXTERIOR AND R-16 FOR INTERIOR.

9. INSULATE PIPING IN UNCONDITIONED SPACE LEADING TO AND FROM WATER HEATERS WITH MINIMUM R-4 INSULATION FOR A DISTANCE OF 5 FEET FROM THE WATER HEATER.

10. GENERAL LIGHTING IN KITCHEN AND BATHROOMS SHALL HAVE AN EFFICIENCY OF AT LEAST 40 LUMENS PER WATT.

PROJECT GENERAL NOTES

VERIFY ALL DIMENSIONS AND CONDITIONS IN THE FIELD. ANY DISCREPANCIES IN THESE DRAWINGS SHALL BE BROUGHT TO THE ATTENTION OF THE DESIGNER AND ENGINEER PRIOR TO STARTING WORK.

ALL ABBREVIATIONS INCLUDED FOLLOW INDUSTRY STANDARDS. CONTACT DESIGNER OR ENGINEER IF ANY ABBREVIATIONS ARE NOT CLEAR.

FIRE-RESISTANCE REQUIREMENTS FOR BUILDING ELEMENTS PER CBC, TABLE 601, SHALL BE MAINTAINED.

CODES & AUTHORITIES

ALL CONSTRUCTION SHALL COMPLY WITH:

2013 CALIFORNIA BUILDING CODE
2013 CALIFORNIA RESIDENTIAL CODE
2013 CALIFORNIA PLUMBING CODE
2013 CALIFORNIA MECHANICAL CODE
2013 CALIFORNIA ELECTRICAL CODE
2013 CALIFORNIA ENERGY CODE
2013 CALIFORNIA GREEN BUILDING CODE
2013 CALIFORNIA FIRE CODE
ALL OTHER APPLICABLE CODES, STANDARDS, AND REGULATIONS.

INDEX OF DRAWINGS

No.	Description	Date

REMODELING PROJECT

LONG BEACH, CA

PROJECT DATA / INDEX

Project number	2016.1
Date	11.01.16
Drawn by	JH

A1.0

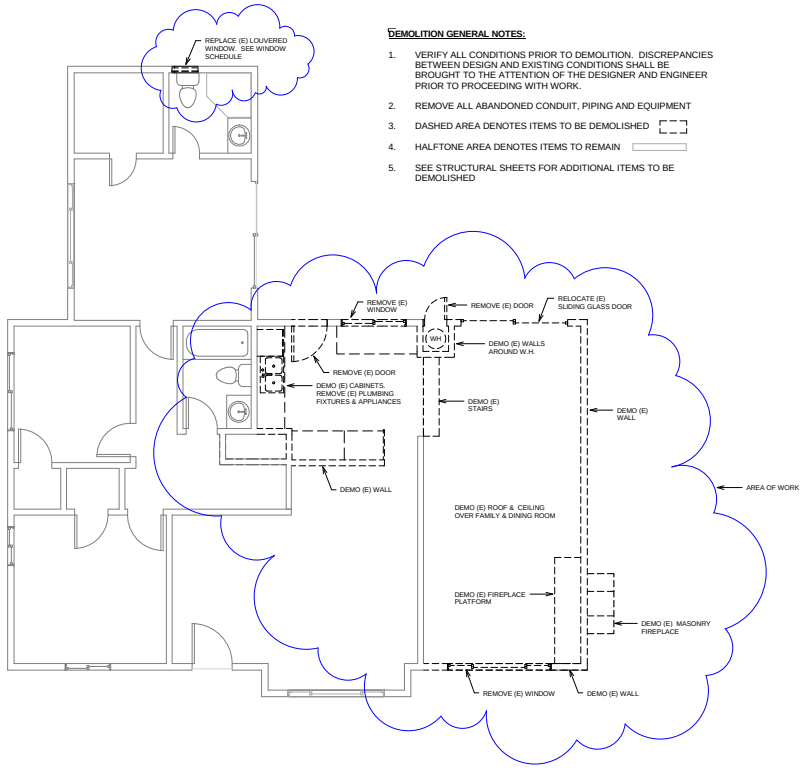
Scale 1/8" = 1'-0"

GENERAL PLAN NOTES

1. THE PROJECT BUILDING SHALL BE DESIGNED AND CONSTRUCTED IN FULL COMPLIANCE WITH THE 2013 CBC, 2013 CPC, 2013 CMC, AND 2013 CEC.
2. ALL WALLS (INTERIOR & EXTERIOR) TO BE 2X4 WOOD STUD @ 16" O.C. MIN., U.N.O.
3. ALL WALLS TO BE INSULATED WITH R-13 (INTERIOR & EXTERIOR), U.N.O.
4. ATTIC INSULATION TO BE R-30, U.N.O.
5. PROVIDE 1/2" GYPSUM WALLBOARD SMOOTH TAPE WITH CORNER BEAD AND SKIM COAT FINISH THROUGHOUT, U.N.O.
6. ALL WALL COVERS IN SHOWERS AND TUBS TO BE CEMENT PLASTER, TILED OR EQUAL (NON-ABSORBENT) TO 70" MIN. ABOVE DRAIN.
7. ALL TOILETS TO BE LOW FLOW (1.6 FGALLON / FLUSH). ALL SHOWERHEADS AND FAUCETS TO BE LOW FLOW (2.5 GPM).
8. IN SHOWER AND TUB-SHOWER COMBINATIONS, CONTROL VALVES MUST BE PRESSURE BALANCED OR THERMOSTATIC MIXING VALVES.
9. A 12" X 12" MIN. ACCESS PANEL TO BATHTUB TRAP CONNECTION IS REQUIRED UNLESS PLUMBING IS WITHOUT SLIP JOINTS.
10. PROVIDE FIRE BLOCKING IN CONCEALED SPACES OR STUD WALLS AND PARTITION WALLS, AND IN OPENING A ROUND VENTS, PIPES, DUCTS, CHIMNEYS, BETWEEN ATTIC AND CHIMNEY CHASE, TYP.
11. IF APPLICABLE, PROVIDE DRYER VENT TO OUTSIDE. MAX. LENGTH 14'-0 WITH 2 90-DEGREE ELBOWS. DRYER EXHAUST SHALL TERMINATE AT LEAST 3'-0 FROM THE PROPERTY LINE AND FROM ANY OPENING INTO THE BUILDING.
12. PROVIDE CORROSION-RESISTANT WEEP SCREEN ON ALL EXTERIOR STUD WALLS AT OR BELOW THE FOUNDATION PLATE LINE A MINIMUM OF 4" ABOVE GRADE, OR 2" ABOVE PAVED AREAS.
13. ATTIC OR UNDER FLOOR HEATING AND COOLING EQUIPMENT:
    - A. ATTIC ACCESS MIN. 22" X 30" NOT OVER 20'-0" FROM EQUIPMENT.
    - B. UNOBSTRUCTED PASSAGE 24" WIDE WITH SOLID CONTINUOUS FLOORING FROM ACCESS TO EQUIPMENT AND/OR CONTROL PANEL.
    - C. A LEVEL UNOBSTRUCTED WORK PLATFORM MIN. 30" IN FRONT OF EQUIPMENT WITH 30" OF HEADROOM.
    - D. LIGHT OVER EQUIPMENT WITH SWITCH AT ACCESS. AIR SUPPLY OPENING OF 2 (TWO) SQUARE INCHES PER 1000BTU FOR BLOWER TYPES AND 7 (SEVEN) SQUARE INCHES PER 1,000BTU FOR GRAVITY FEED TYPE.
    - F. PROVIDE CONCRETE SLAB FOR HEATING AND COOLING EQUIPMENT SUPPORTED FROM THE GROUND.
14. PROVIDE A RECEPTACLE OUTLET WITHIN SIX FEET OF ANY POINT ALONG WALL IN LIVABLE ROOMS.
15. PROVIDE GROUND-FAULT CIRCUIT INTERRUPTERS (GFI) PROTECTION FOR ALL 125-VOLT, SINGLE PHASE, AND 20-AMPERE RECEPTACLES INSTALLED IN BATHROOMS, KITCHENS, GARAGES (AND OUTDOORS) CRAWL SPACES, BASEMENTS WITHIN 6' OF ANY SINK OR WET BAR.
16. PROVIDE ARC-FAULT CIRCUIT INTERRUPTER PROTECTION FOR ALL 125-VOLT SINGLE PHASE, 15 AND 20-AMPERE RECEPTACLES INSTALLED IN BEDROOMS OF DWELLING UNITS.
17. PROVIDE SERVICE DISCONNECT(S) NEAREST THE POINT OF ENTRANCE OF THE SERVICE ENTRANCE CONDUCTORS.
18. PROVIDE A SEPARATE MEANS FOR DISCONNECTING ALL UNDERGROUND CONNECTORS.
19. PROVIDE ONE-HOUR SEPARATION BETWEEN HOUSE AND GARAGE
20. A HEIGHT SURVEY CONDUCTED BY A LICENSED SURVEYOR MAY BE REQUIRED AT THE TIME OF INSPECTION AND PRIOR TO APPROVAL OF ROUGH FRAMING.
21. EGRESS DOORS SHALL BE READILY OPENABLE FROM THE EGRESS SIDE WITHOUT THE USE OF A KEY OR SPECIAL KNOWLEDGE (CBC 1008.1.8)
22. DOOR HANDLES, PULLS, LATCHES, LOCKS, AND OTHER OPERATING DEVICES SHALL BE A MIN. 34" TO MAX. 48" HEIGHT ABOVE THE FLOOR (CBC 1008.1.8.2)
23. MANUALLY OPERATED FLUSH BOLTS OR SURFACE BOLTS ARE NOT PERMITTED ON DOORS REQUIRED FOR EGRESS (CBC 1008.1.8.4)

ABBREVIATIONS

@	AT	MAX.	MAXIMUM
ADD'N	ADDITION	MFR.	MANUFACTURER
AVE.	AVENUE	MIN.	MINIMUM
BLDG.	BUILDING	MT'D	MOUNTED
BD'S	BOARDS	MTL.	METAL
BLK'G	BLOCKING	(N)	NEW
BM.	BEAM	N.I.C.	NOT IN CONTRACT
CONC.	CONCRETE	N.T.S.	NOT TO SCALE
CAB.	CABINET	O/C O.C.	ON CENTER
C.J.	CEILING JOIST	O/	OVER
CL.	CEILING	O.H.	OVER HEAD, OVER HANG
CLO.	CLOSET	OP.	OPERATED
CONT.	CONTINUOUS	OPP.	OPPOSITE
DN.	DOWN	OP'G	OPENING
DBL.	DOUBLE	PART	PARTIAL
D.S.	DOWN SPOUT	P.L.	PROPERTY LINE
DIA.	DIAMETER	PLWD.	PLYWOOD
D.I.	DRAIN INLET	PT.	POINT
D.J.	DECK JOIST	P.T.	PRESSURE TREATED
(E)	EXISTING	R.	RADIUS, RISER
ELEC.	ELECTRIC	R.A.	RETURN AIR
ELEV.	ELEVATION	RD.	ROAD
EXT.	EXTERIOR	REINF.	REINFORCED
EA.	EACH	REQ'D	REQUIRED
FBG.	FIBERGLASS	RM.	ROOM
FDN.	FOUNDATION	R.O.	ROUGH OPENING
F.H.	FULL HEIGHT	S.A.	SUPPLY AIR
FIXT.	FIXTURE	S.A.B.	SOUND ATTENUATION BATTS
F.J.	FLOOR JOIST	S.D.	SMOKE DETECTOR
FLR.	FLOOR	SEOT.	SECTION
FLUOR.	FLUORESCENT	SIM.	SIMILAR
FR.	FROM	SNGL.	SINGLE
FT.	FEET	S.O.G.	SLAB ON GRADE
FT'G	FOOTING	STD.	STANDARD
FURN.	FURNACE	T&G	TONGUE & GROOVE
GA	GAUGE	T.D.L.	TRUE DIVIDED LITE
GALV.	GALVANIZED	T.O.C.	TOP OF CONCRETE
GFI	GROUND FAULT INT.	THK.	THICK
GLB	GLUE LAMINATED BM	TR.	TREAD
G.S.M.	GALVANIZED SHT MTL.	TYP.	TYPICAL
GYP. BD.	GYPSUM BOARD	U/	UNDER
HDR.	HEADER	V.I.F.	VERIFY IN FIELD
HNGR.	HANGER	V.B.	VAPOR BARRIER
HWY.	HIGHWAY	W/	WITH
IN.	INCH	W/O	WITHOUT
INCAND.	INCANDESCENT	WD.	WOOD
INC.	INCLUDE	W.P.	WATER PROOF
INSUL.	INSULATION	W.W.F.	WELDED WIRE FABRIC
LNDRY.	LAUNDRY		
LT.	LIGHT		



DEMOLITION GENERAL NOTES:

1. VERIFY ALL CONDITIONS PRIOR TO DEMOLITION. DISCREPANCIES BETWEEN DESIGN AND EXISTING CONDITIONS SHALL BE BROUGHT TO THE ATTENTION OF THE DESIGNER AND ENGINEER PRIOR TO PROCEEDING WITH WORK.
2. REMOVE ALL ABANDONED CONDUIT, PIPING AND EQUIPMENT
3. DASHED AREA DENOTES ITEMS TO BE DEMOLISHED
4. HALFTONE AREA DENOTES ITEMS TO REMAIN
5. SEE STRUCTURAL SHEETS FOR ADDITIONAL ITEMS TO BE DEMOLISHED

No.	Description	Date

REMODELING PROJECT

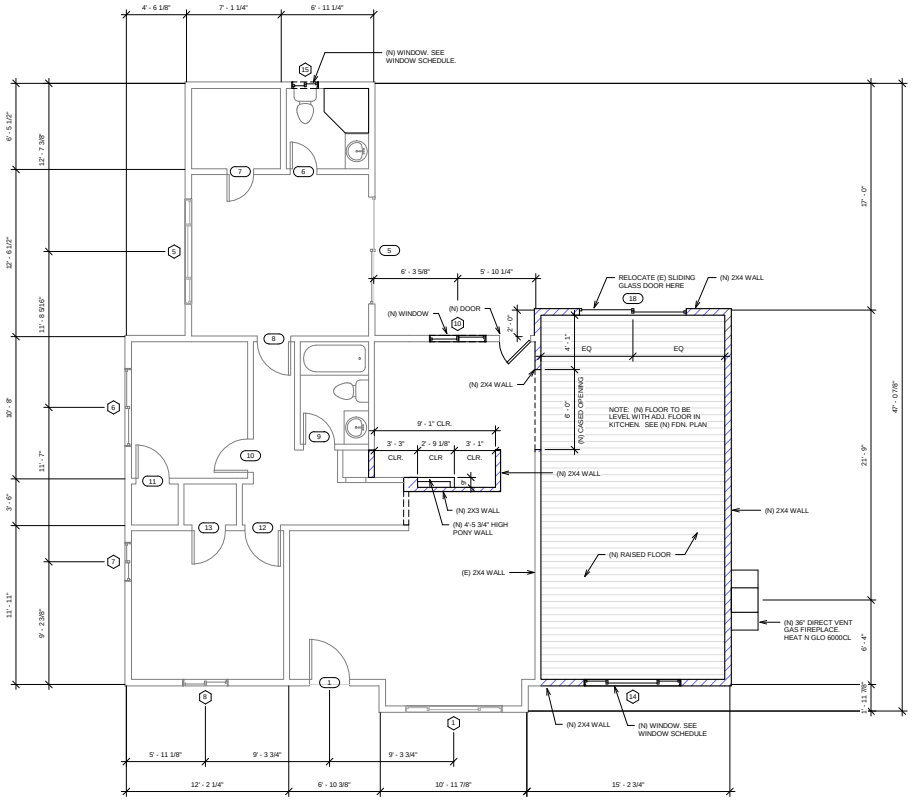
LONG BEACH, CA

DEMOLITION PLAN

Project number	2016.1
Date	11.01.16
Drawn by	JH

A1.1

Scale 1/4" = 1'-0"



1 (N) Floor Construction
1/4" = 1'-0"

(N) Door Schedule						
Mark	Width	Height	Operation	Finish	Material	Comments
1	3' - 0"	6' - 8"	Single-Flush	Paint [P]	Solid-Core [SC]	Existing [E]
5	8' - 0"	6' - 8"	Sliding-2 Panel	--	V	E
6	2' - 0"	6' - 8"	Single-Flush	P	HC	E
7	2' - 0"	6' - 8"	Single-Flush	P	HC	E
8	2' - 6"	6' - 8"	Single-Flush	P	HC	E
9	2' - 4"	6' - 8"	Single-Flush	P	HC	E
10	2' - 6"	6' - 8"	Single-Flush	P	HC	E
11	2' - 6"	6' - 8"	Single-Flush	P	HC	E
12	2' - 8"	6' - 8"	Single-Flush	P	HC	E
13	2' - 6"	6' - 8"	Single-Flush	P	HC	E
14	16' - 0"	7' - 0"	Overhead-Sectional	P	Steel	E (Garage)
15	2' - 8"	6' - 8"	Single-Flush	P	SC	E (Garage)
17	2' - 4"	6' - 8"	Single-Flush_2	P	SC	N [New]
18	8' - 0"	6' - 8"	Sliding-2 Panel	--	V	N
19	1' - 6"	6' - 8"	Single-Flush_2	P	SC	N

(N) Window Schedule					
Mark	Width	Height	Operation	Material	Comments
1	7' - 2 3/4"	4' - 11"	Horizontal Slider Triple	Alum. [A]	Existing [E]
5	7' - 10 1/4"	1' - 10 3/4"	Horizontal Slider Triple	A	E
6	5' - 10 1/4"	1' - 10 1/2"	Slider with Trim	A	E
7	2' - 11"	4' - 3 1/2"	Slider with Trim	A	E
8	3' - 5"	4' - 3"	Slider with Trim	A	E
9	7' - 10 1/4"	1' - 10 3/4"	Horizontal Slider Triple	A	E (Garage)
10	4' - 3"	3' - 3"	Slider with Trim	Vinyl [V]	N [New]
11	1' - 9 1/2"	2' - 3 3/8"	Skylight-Operable	A	E
12	2' - 6 9/16"	3' - 10 1/4"	Skylight-Operable	A	N
13	2' - 6 9/16"	3' - 10 1/4"	Skylight-Operable	A	N
14	7' - 2 3/4"	4' - 11"	Horizontal Slider Triple	V	N
15	2' - 0"	3' - 0"	Slider with Trim	V	N

No.	Description	Date

REMODELING PROJECT

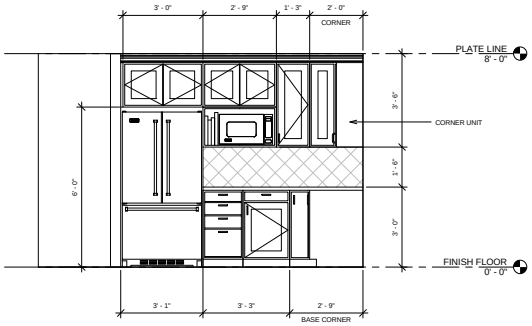
LONG BEACH, CA

(N) CONSTRUCTION PLAN

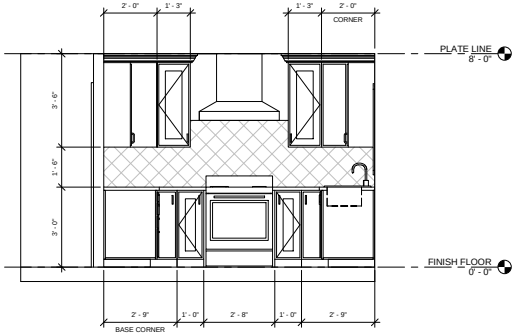
Project number	2016.1
Date	11.01.16
Drawn by	JH

A1.2

Scale 1/4" = 1'-0"



2 INT. ELEV 1
1/2" = 1'-0"



3 INT. ELEV. 2
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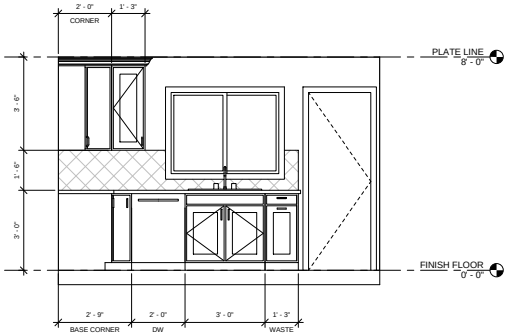

4 INT. ELEV. 3
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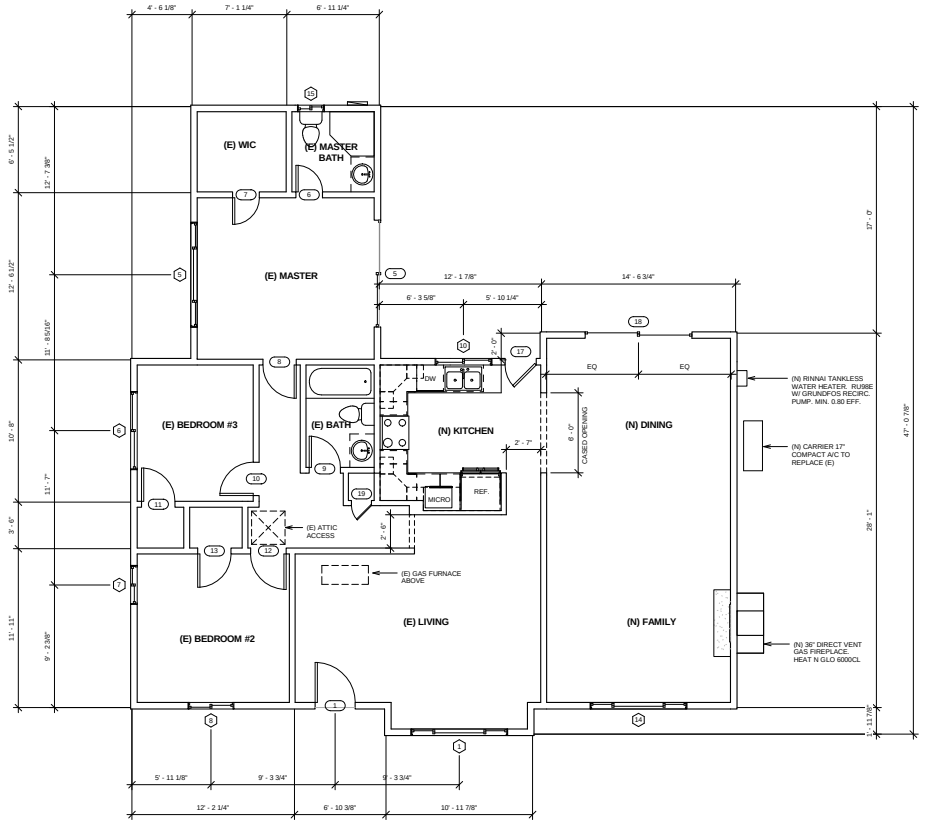


1 (N) Floor Plan
1/4" = 1'-0"

(N) Door Schedule

Mark	Width	Height	Operation	Finish	Material	Comments
1	3' - 0"	6' - 8"	Single-Flush	Paint [P]	Solid-Core [SC]	Existing [E]
5	8' - 0"	6' - 8"	Sliding-2 Panel	--	V	E
6	2' - 0"	6' - 8"	Single-Flush	P	HC	E
7	2' - 0"	6' - 8"	Single-Flush	P	HC	E
8	2' - 6"	6' - 8"	Single-Flush	P	HC	E
9	2' - 4"	6' - 8"	Single-Flush	P	HC	E
10	2' - 6"	6' - 8"	Single-Flush	P	HC	E
11	2' - 6"	6' - 8"	Single-Flush	P	HC	E
12	2' - 8"	6' - 8"	Single-Flush	P	HC	E
13	2' - 6"	6' - 8"	Single-Flush	P	HC	E
14	16' - 0"	7' - 0"	Overhead-Sectional	P	Steel	E (Garage)
15	2' - 8"	6' - 8"	Single-Flush	P	SC	E (Garage)
17	2' - 4"	6' - 8"	Single-Flush_2	P	SC	N [New]
18	8' - 0"	6' - 8"	Sliding-2 Panel	--	V	N
19	1' - 6"	6' - 8"	Single-Flush_2	P	SC	N

(N) Window Schedule

Mark	Width	Height	Operation	Material	Comments
1	7' - 2 3/4"	4' - 11"	Horizontal Slider Triple	Alum. [A]	Existing [E]
5	7' - 10 1/4"	1' - 10 3/4"	Horizontal Slider Triple	A	E
6	5' - 10 1/4"	1' - 10 1/2"	Slider with Trim	A	E
7	2' - 11"	4' - 3 1/2"	Slider with Trim	A	E
8	3' - 5"	4' - 3"	Slider with Trim	A	E
9	7' - 10 1/4"	1' - 10 3/4"	Horizontal Slider Triple	A	E (Garage)
10	4' - 3"	3' - 3"	Slider with Trim	Vinyl [V]	N [New]
11	1' - 9 1/2"	2' - 3 3/8"	Skylight-Operable	A	E
12	2' - 6 9/16"	3' - 10 1/4"	Skylight-Operable	A	N
13	2' - 6 9/16"	3' - 10 1/4"	Skylight-Operable	A	N
14	7' - 2 3/4"	4' - 11"	Horizontal Slider Triple	V	N
15	2' - 0"	3' - 0"	Slider with Trim	V	N

No.	Description	Date

REMODELING PROJECT

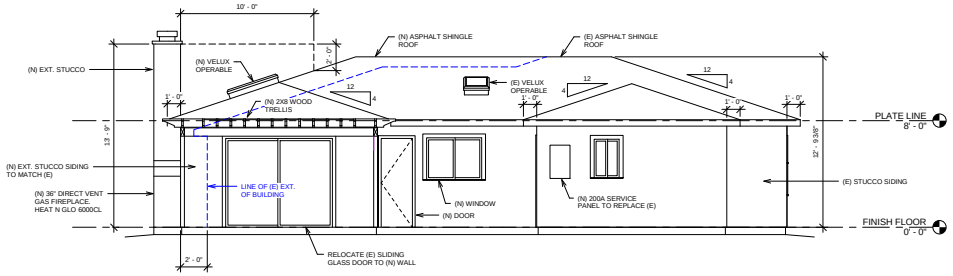
LONG BEACH, CA

(N) FLOOR PLAN

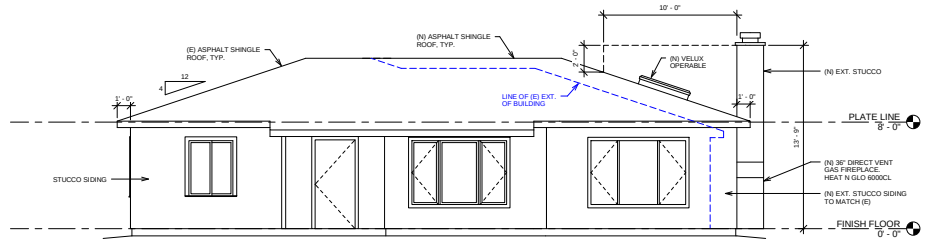
Project number	2016.1
Date	11.01.16
Drawn by	JH

A1.3

Scale As indicated



1 (N) North
1/4" = 1'-0"



2 (N) South
1/4" = 1'-0"

ELEVATION NOTES

1. CHIMNEY TO EXTEND A MIN. OF 2'-0" ABOVE ROOF OR PARAPET WITHIN 1 10'-0" RADIUS OF CHIMNEY.

2. PROVIDE AN APPROVED SPARK ARRESTOR AT ALL CHIMNEY CAPS, NOT LESS THAN FOUR (4) TIMES NET FREE AREA OF OUTLET OF CHIMNEY.

3. ALL EXTERIOR STUCCO SIDING TO BE PAINTED WITH ELASTOMERIC TYPE PAINT.

4. ALL EXTERIOR STUD WALL TO RECEIVE CORROSION-RESISTANT WEEP SCREED AT A MINIMUM OF 4" ABOVE GRADE, OR 2" ABOVE PAVED AREAS.

No.	Description	Date

REMODELING PROJECT

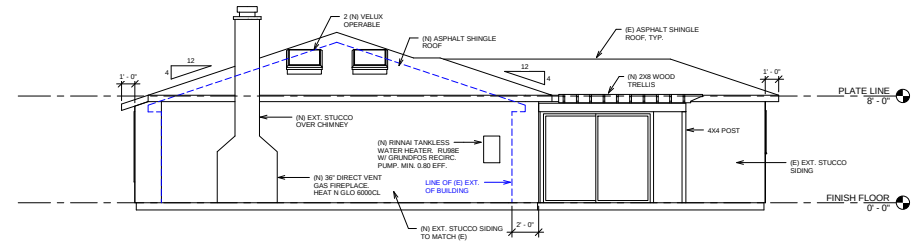
LONG BEACH, CA

(N) ELEVATIONS

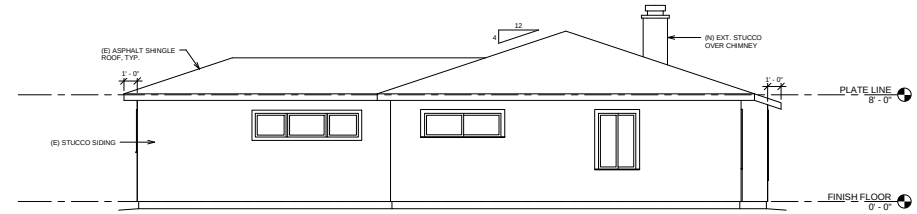
Project number	2016.1
Date	11.01.16
Drawn by	JH

A2.1

Scale 1/4" = 1'-0"



1 (N) East
1/4" = 1'-0"



2 (N) West
1/4" = 1'-0"

ELEVATION NOTES

1. CHIMNEY TO EXTEND A MIN. OF 2'-0" ABOVE ROOF OR PARAPET WITHIN 1 10'-0" RADIUS OF CHIMNEY.

2. PROVIDE AN APPROVED SPARK ARRESTOR AT ALL CHIMNEY CAPS, NOT LESS THAN FOUR (4) TIMES NET FREE AREA OF OUTLET OF CHIMNEY.

3. ALL EXTERIOR STUCCO SIDING TO BE PAINTED WITH ELASTOMERIC TYPE PAINT.

4. ALL EXTERIOR STUD WALL TO RECEIVE CORROSION-RESISTANT WEEP SCREED AT A MINIMUM OF 4" ABOVE GRADE, OR 2" ABOVE PAVED AREAS.

No.	Description	Date

REMODELING PROJECT

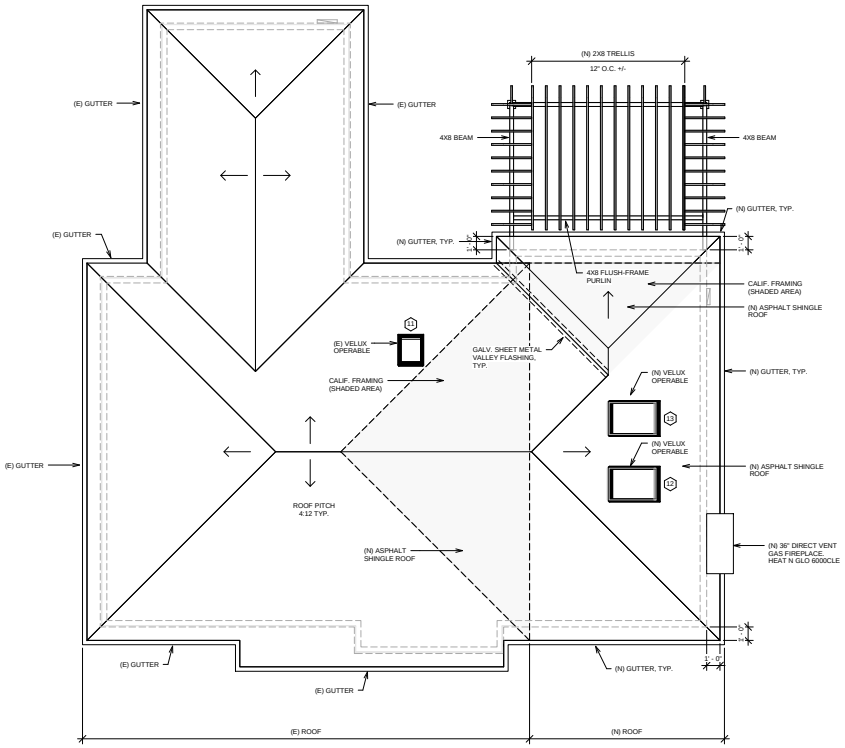
LONG BEACH, CA

(N) ELEVATIONS

Project number	2016.1
Date	11.01.16
Drawn by	JH

A2.2

Scale 1/4" = 1'-0"



ROOF PLAN NOTES

1. ROOFING SHINGLES TO BE ARCHITECTURAL ROOF SHINGLES.
2. ROOFING NAILS TO BE COPPER, BRASS OR STAINLESS STEEL, U.N.O.
3. ALL NECESSARY FLASHING TO BE GALV. STEEL INCLUDING RIDGE, VALLEY, EAVE, CHIMNEY, U.N.O.
4. ALL GUTTER TO BE 4" K-STYLE GALV. STEEL, U.N.O.
5. ALL DOWNSPOUTS TO BE RECTANGULAR AND GALV. STEEL, U.N.O.
6. ALL CONCENTRATED DRAINAGE INCLUDING ROOF WATER TO BE CONDUCTED TO AN APPROVED LOCATION
7. OVERFLOW DRAINS, IF APPLICABLE, TO BE SAME SIZE AS ROOF DRAIN. OVERFLOW DRAIN TO BE INSTALLED WITH THE INLET FLOW LINE 2" ABOVE THE LOW POINT OF THE ROOF AND SHALL NOT BE CONNECTED TO THE ROOF DRAIN LINES. OVERFLOW DRAIN SHALL BE INSTALLED IN ACCORDANCE WITH MANUF'S CURRENT RECOMMENDATION AND ALL PERTINENT CODES AND REGULATIONS.
8. PROVIDE MIN. 22" X 30" ATTIC ACCESS MINIMUM.
9. ATTIC VENTILATION OPENINGS TO BE COVERED WITH CORROSION-RESISTANT METAL MESH WITH MESH OPENINGS OF ¼" IN DIMENSION.
10. WHERE EAVE VENTS ARE INSTALLED, INSULATION SHALL NOT BLOCK THE FREE FLOW OF AIR. A MINIMUM OF 1" OF AIR SPACE SHALL BE PROVIDED BETWEEN THE INSULATION AND THE ROOF SHEATHING. TO ACCOMMODATE THE THICKNESS OF INSULATION PLUS THE REQUIRED 1" CLEARANCE, MEMBER SIZE MAY HAVE TO BE INCREASED FOR RAFTER CEILING JOISTS(SECTION 1505.3).
11. CHIMNEY FLUE TO BE IN WOOD FRAMED CHASE; CHIMNEY IS TO TERMINATE IN A FACTORY-BUILT SPARK ARRESTOR MANUFACTURED BY "MAJESTIC" OR EQUAL.
12. CHIMNEY TO EXTEND A MIN. OF 2'0" ABOVE ROOF WITHIN A 10'0" RADIUS OF CHIMNEY. ALL ARCHITECTURAL FEATURES AT CHIMNEY TOP MUST BE PERMITTED WITH MANUFACTURER'S APPROVAL.
13. ALL PLUMBING AND HEATING ROOF VENTS TO BE OUT OF VIEW IF PRACTICAL.

ATTIC VENTILATION (NEW):

CODE REQUIRMENT: 1/150 OF ATTIC AREA

(N) ATTIC AREA: 88 SQFT
88/150 = APPROX. 0.59 SQFT

TOTAL 0.59 SQFT OF ADDITIONAL VENT AREA REQUIRED

No.	Description	Date

REMODELING PROJECT

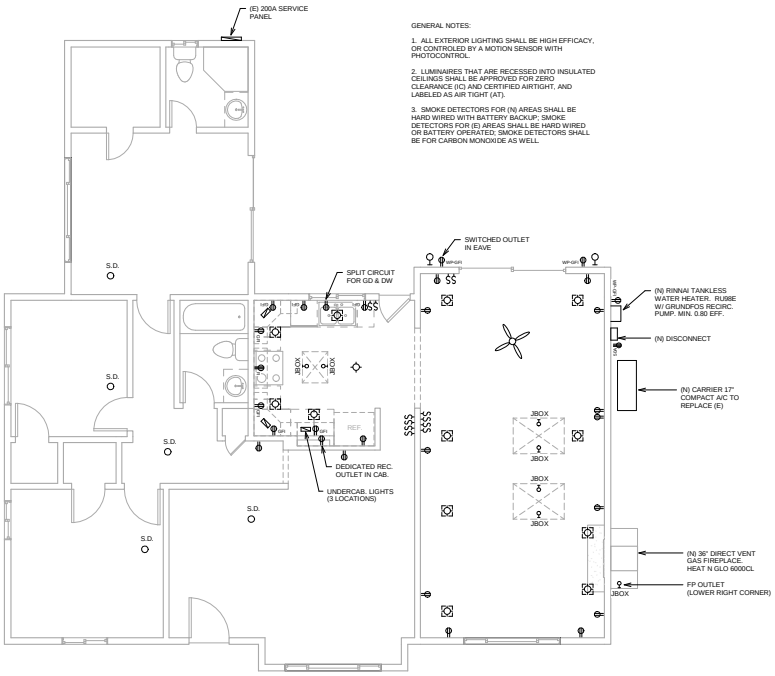
LONG BEACH, CA

(N) ROOF PLAN

Project number	2016.1
Date	11.01.16
Drawn by	JH

A3.1

Scale 1/4" = 1'-0"



No.	Description	Date

REMODELING PROJECT

LONG BEACH, CA

(N) ELECTRICAL PLAN

Project number	2016.1
Date	11.01.16
Drawn by	JH

E1.0

Scale 1/4" = 1'-0"

GENERAL NOTES:

1. THE FOLLOWING SPECIFICATIONS SHALL CONFORM TO THE 2013 CBC AND ANY OTHER CITY or COUNTY ORDINANCES THAT ARE IN FORCE AT THE TIME OF THIS PROJECT.
2. THE SELECTED GENERAL CONTRACTOR SHALL VERIFY ALL DIMENSIONS, ELEVATIONS and CONDITIONS PRIOR TO STARTING ANY FIELDWORK.
3. ANY DEVIATION CALLED BY THE FIELD CONDITIONS, OR ANY CONDITIONS DIFFERENT FROM THOSE INDICATED ON THE PLANS SHALL BE BROUGHT TO THE DESIGNERS ATTENTION.
4. TYPICAL DETAILS SHALL APPLY WHERE NO SPECIFIC DETAILS OR SECTIONS ARE PROVIDED.
5. DIMENSIONS SHOWN ON PLANS OR DETAILS TAKE PRECEDENCE OVER SCALES SHOWN.
6. THE SELECTED GENERAL CONTRACTOR SHALL BE RESPONSIBLE FOR THE SATISFACTORY COMPLETION OF ALL WORK IN ACCORDANCE WITH THE PROJECT PLANS AND SPECIFICATIONS.

STRUCTURAL STEEL:

1. STRUCTURAL STEEL SHALL CONFORM TO A.S.T.M. (A-36) SPECIFICATIONS AND TO THE LATEST APPROVED EDITION OF THE A.I.S.C. SPECIFICATIONS FOR FABRICATION and ERECTION.
2. ALL BOLTS SHALL CONFORM TO A.S.T.M. (A-307) FOR UNFINISHED BOLTS.
3. ALL BOLT HOLES IN STEEL MEMBERS SHALL BE TRUE; BURNING OF HOLES FOR CONNECTIONS WILL NOT BE PERMITTED.
4. PROVIDE FULL BEARING ON UNTHREADED PORTION OF BOLT SHANK FOR ALL STEEL CONNECTIONS.
5. PROVIDE LEVELING NUTS FOR ALL BOLTS AT BEAM SEATS and COLUMN BASE PLATES.
6. ALL NUTS FOR STRUCTURAL STEEL CONNECTIONS SHALL BE HEAVY HEXAGONAL NUTS.
7. ALL WELDING SHALL BE AS INDICATED ON THE DETAILS and PERFORMED IN A QUALIFIED SHOP, UNDER CONTINUOUS INSPECTION AS PER C.B.C. 1704A.3.1. FIELD WELDING, OTHER THAN MISCELLANEOUS TACK WELDING IS NOT PERMITTED, UNLESS NOTED OTHERWISE IN THE DETAILS.

CONCRETE:

1. CONCRETE FOR SLABS ON GRADE, BEAM FOOTINGS OR PIERS SHALL BE FIBER REINFORCED CONCRETE (FRC) AND HAVE A MINIMUM COMPRESSIVE STRENGTH OF 3000 PSI AT 28 DAYS, UNLESS NOTED OTHERWISE ON THE PLANS.
2. THE MAXIMUM AGGREGATE SIZE SHALL BE 3/4", AND MAXIMUM SLUMP SHALL BE 4-1/2".
3. ANCHOR BOLTS, HOLDOWN BOLTS, DOWELS, and OTHER REQUIRED INSERTS SHALL BE POSITIONED and FIRMLY SECURED IN PLACE BEFORE THE CONCRETE IS PLACED.
4. THE SELECTED GENERAL CONTRACTOR SHALL TAKE ALL THE NECESSARY MEASURES TO PROVIDE A PROPER COMPACTION OF THE CONCRETE.
5. THE EXCAVATED BOTTOM OF ALL FOOTINGS SHALL EXTEND TO ELEVATIONS SHOWN ON THE DETAILS and THE FOOTINGS SHALL BE POURED IN NEAT EXCAVATIONS, WITHOUT SIDE FORMS AS POSSIBLE.

SOILS REPORT (N/A; CHAPTER 18 MINIMUMS, APPLY):

1. THE SELECTED GENERAL CONTRACTOR SHALL MAKE HIMSELF FAMILIAR WITH ALL OF THE SOILS INVESTIGATION REPORT REQUIREMENTS and RECOMMENDATIONS, AND TAKE ALL NECESSARY MEASURES FOR A CORRECT AND COMPLETE IMPLEMENTATION OF SUCH REQUIREMENTS, IN THE FIELD.

REINFORCING STEEL:

1. REINFORCING STEEL SHALL BE DEFORMED BARS, CONFORMING TO A.S.T.M. A615-40 REQUIREMENTS and WELDED WIRE MESH PER A.S.T.M. SPECIFICATION A-185.
2. REBARS NO. 4 and SMALLER SHALL BE OF GRADE 40, and REBARS NO. 5 and LARGER SHALL BE OF GRADE 60.
3. ALL REINFORCING BARS SHALL BE CLEAN OF ANY RUST, OR FOREIGN MATERIALS.
4. ALL REINFORCING SPLICES SHALL BE LAPPED A MINIMUM OF 30 BAR DIAMETERS, BUT NOT < 24".

   CONCRETE COVERAGE FOR REINFORCEMENT SHALL BE:

   a. 3" WHERE POURED AGAINST EARTH.
   b. 2" WHERE POURED AGAINST FORMS.
   c. I" FOR SLABS POURED AGAINST FORMS.

   OTHER COVERAGE REQUIREMENTS MAY BE NOTED ON THE PLANS AND DETAILS.
5. SEE THE FINAL, APPROVED PLAN FOR THE QUANTITY AND LOCATION OF ANCHOR BOLTS. LOCATE BOLTS WITHIN 12" FROM CORNERS and SILL BUTT JOINTS.

CONCRETE MASONRY:

1. ALL MASONRY WORK SHALL BE REINFORCED GROUTED MASONRY and CONFORM TO THE 2007 CBC and SHALL BE 8X8X16 LIGHTWEIGHT UNITS WITH A MAX. LINEAR SHRINKAGE OF 0.06% PER A.S.T.M. (C-90-52), GRADE A. HOLLOW UNITS SHALL HAVE ALL CELLS GROUTED, WHILE SOLID UNITS SHALL BEGRADE MW, W/2500 PSI ON THE GROSS AREA OF THE BLOCKS. NO CONTINUOUS or PERIODIC SPECIAL INSPECTION IS REQUIRED, U.N.O. ON THE PLANS.
2. MORTAR MIX SHALL BE COMPOSED OF ONE PART PORTLAND CEMENT TO NOT MORE THAN THREE PARTS SAND. GROUT MIX SHALL BE COMPOSED OF ONE PART PORTLAND CEMENT TO NOT MORE THAN THREE PARTS SAND and NOT LESS THAN TWO PARTS PEA GRAVEL. F'm SHALL BE 1500 PSI FOR BOTH THE MORTAR and GROUT MIXES (I'm ASSUMED TO BE 250 PSI).
3. WALLS TO BE GROUTED IN 4' MAX. LIFTS. UNLESS HIGH LIFT GROUT PROCEDURES (with BLOCKOUTS) ARE USED. ALL REINFORCING SHALL HAVE MINIMUM COVERAGE OF 1/2" OF GROUT. ALL BOLTS SHALL HAVE MINIMUM COVERAGE OF 1" OF GROUT.
4. NO PIPES or DUCTS SHALL BE PLACED IN MASONRY WALLS UNLESS SPECIFICALLY NOTED or DETAILED.
5. DOWELS IN CONCRETE FOR MASONRY WALLS SHALL BE 2-no. 4 OR AS SHOWN ON THE DETAILS.
6. ALL RETAINING BLOCK WALLS SHALL BE PROVIDED WITH AN APPROVED MOISTURE BARRIER ON THE DIRT SIDE. SEE THE ARCHITECT'S/DESIGNER'S DRAWINGS.

LUMBER:

1. WOOD MEMBERS LESS THAN 4" IN WIDTH SHALL BE Douglas FIR No. 2 OR BE 1I ER, and 4" OR WIDER SHALL BE Douglas FIR No. 1 OR BETTER, UNLESS NOTED OTHERWISE ON THE PLANS.
2. UNLESS NOTED OTHERWISE ON THE PLANS, ALL NAILING SHALL BE PER C.B.C., TABLE 2304.9.1.
3. ALL CONNECTING HARDWARE SHALL BE SIMPSON COMPANY TYPE, USP LUMBER CONNECTORS TYPE or EQUAL, AND INSTALLATION SHALL BE IN ACCORDANCE WITH MANUFACTURER'S REQUIREMENTS, U.N.O.
4. GLU-LAMINATED BEAMS SHALL BE OF A GRADE COMBINATION PROVIDING A MINIMUM Fb= 2400 psi (GRADE DF24FV3 or better). NO CAMBER REQUIRED, U.N.O. ON THE PLANS.
5. ROOF SHEATHING SHALL BE A MINIMUM 5/8" CDX PLYWOOD WITH EXTERIOR GLUE, GROUP 2. EXPOSED SHEATHING AT ROOF OVERHANG SHALL BE AS INDICATED ON THE ARCHITECT'S/DESIGNER'S DWGS.
6. WALL SHEATHING, IF REQUIRED, SHALL BE A MIN. 3/8" C-DX PLYWD. WITH EXTERIOR GLUE, GRP. 2.
7. FLOOR SHEATHING SHALL BE T&G, INT-APA WITH EXTERIOR GLUE, GRP. 2. SEE PLANS FOR SIZE.
8. BEARING and NONBEARING WALLS SHALL HAVE DOUBLE TOP PLATES, LAPPED AT INTERSECTIONS. PLATE JOINTS SHALL BE STAGGERED 48" or AS INDICATED ON THE STRUCTURAL DETAILS. 48" LAP SPLICES w/8-16D FACE NAILS FOR LAP SPLICE NAILING, U.N.O. ON PLANS.
9. U.N.O. ON THE PLANS, WALLS SHALL BE 2 X 4 STUDS (STUD GRADE OR BETTER) AT 16" O.C.
10. ALL HEADERS ARE AS NOTED ON THE APPROVED, FINAL PLANS.
11. ALL WOOD BEARING ON CONCRETE OR MASONRY SHALL BE PRESSURE TREATED DOUGLAS FIR. USE HOT- DIPPED, ZINC-COATED GALVANIZED; STAINLESS STEEL or ALUMINUM ALLOY CORROSION RESISTANT ANCHOR BOLTS ON PRESSURE TREATED WOOD PLATES.
12. HOLES FOR BOLTS SHALL BE BORED WITH A BIT 1/16" LARGER THAN THE NOMINAL BOLT DIAMETER. ALL BOLTS SHALL BE RETIGHTENED PRIOR TO APPLICATION OF PLYWD, GYP. BRD., etc.
13. STRUCTURAL MEMBERS SHALL NOT BE CUT FOR PIPES, etc., UNLESS SPECIFICALLY NOTED or DETAILED.
14. 2X SOLID BLOCKING SHALL BE PLACED BETWEEN JOISTS or RAFTERS AT ALL SUPPORTS.
15. ALL BOLTS BEARING ON FOUNDATION SILLS SHALL HAVE SIMPSON "BP5/8-2" WASHERS UNDER HEAD and NUT UNLESS NOTED OTHERWISE IN THE DETAILS.

SPECIAL INSPECTION and TESTING per CBC SECTION 1701, ONLY WHERE APPLICABLE):

1. CONCRETE PLACEMENT and STRENGTH TESTING SHALL BE PER 2007 CBC, SECTION 1704.4.
2. ALL WELDING SHALL BE PER 2007 CBC, SECTION 1704.3 and TABLE 1704.3
3. INSTALLATION of HIGH-STRNGTH BOLTS SHALL BE PER 2007 CBC, SECTION 1704.3.3.

No.	Description	Date

REMODELING PROJECT

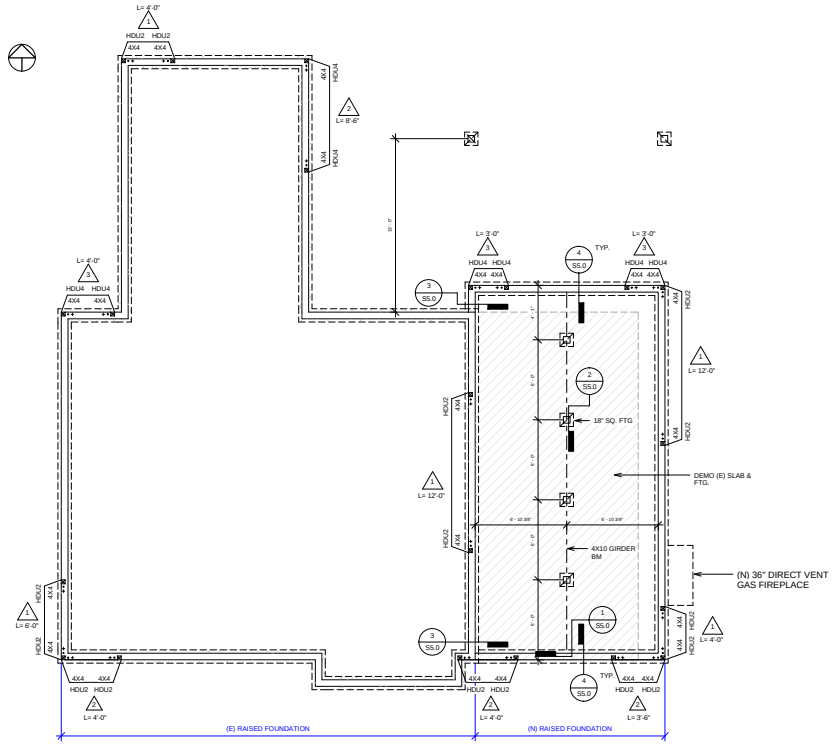
LONG BEACH, CA

GENERAL STRUCTURAL NOTES

Project number	2016.1
Date	11.01.16
Drawn by	JH

S1.0

Scale



FOUNDATION NOTES:

1. SEE S-1 FOR GENERAL NOTES.
2. SEE S-5 FOR TYPICAL DETAILS.
3. VERIFY ALL DIMENSIONS ON SITE AND NOTIFY ARCHITECT & ENGINEER OF ANY CONFLICTING DIMENSIONS AND/OR CONDITIONS.
4. ANCHOR BOLTS, DOWELS AND HOLD-DOWN ARCHORS SHALL BE SECURELY HELD IN PLACE PRIOR TO FOUNDATION INSPECTION.
5. HOLD-DOWNS SHALL BE RE-TIGHTENED JUST PRIOR TO COVERING THE WALL FRAMING.
6. FOUNDATION SILL SHALL BE NATURALLY DURABLE OR PRESSURE TREATED WOOD MEMBERS.
7. IF ADVERSE SOIL CONDITIONS ARE ENCOUNTERED, A SOILS INVESTIGATION REPORT MAY BE REQUIRED.
8. CONCRETE STRENGTH FOR FOUNDATIONS SHALL BE 2,500 PSI MIN.
9. ALL CONCRETE IN CONTACT WITH SOIL SHALL BE f'c = 2,500 PSI AT 28 DAYS WITH TYPE V CEMENT AND WATER/CEMENT RATIO EQUAL TO 0.45 MAXIMUM UNLESS OTHERWISE RECOMMENDED IN SOILS REPORT.
10. MINIMUM ANCHOR BOLT SIZE AND SPACING SHALL BE 5/8" DIAMETER AT 72" O.C. WITH MINIMUM 7" EMBEDMENT AND 3"X3"X1/4" PLATE WASHERS, U.N.O. ARCHOR BOLTS SHALL BE LOCATED A MAXIMUM OF 12" AND 4 1/2" MINIMUM FROM THE END OF THE PLATE.
11. FOOTINGS SHALL BE LOCATED AT CENTER OF COLUMNS AND WALLS, UNLESS NOTED OTHERWISE ON PLANS.
12. FOUNDATION SUBGRADED SHALL BE PREPARED PER GEOTECHNICAL REPORT IF AVAILALBE.
13. THE CONCRETE SLAB ON GRADE HAS NOT BEEN DESIGNED FOR ANY SPECIFIC VEHICULAR TRAFFIC OR CRANE LOADS. ONLY GENERAL OFFICE OCCUPANCY UNIFORMLY DISTRIBUTED LOADS ARE CONSIDERED.
14. ALLOWABLE SOIL PRESSURE: 1500 PSF

SHEAR WALL SCHEDULE NOTES:

1. MINIMUM OF TWO BOLTS PER PIECE OF SILL.
2. USE COMMON NAILS UNLESS OTHERWISE NOTED.
3. PLYWOOD SHEATHING SHALL BE STRUCTURAL 1 GRADE U.N.O. ON SCHEDULE
4. NAILING SHALL BE 3/8" FROM EDGE OF PANEL MINIMUM.
5. PANELS SHALL BE 4x8 MINIMUM EXCEPT @ BOUNDARIES.
6. PANELS SHALL CONFORM TO DOC PS-1 OR PS-2.
7. ALL ANCHOR BOLTS TO BE 5/8" DIAMETER MINIMUM w/ 3" x 3" x 1/4" THICK WASHERS TYPICAL.

*8. USE DOUBLE THE ANCHOR BOLTS IN SCHEDULE IF 2x SILL PLATE IS USED INSTEAD OF 3x SILL PLATE.

9. IT IS ACCEPTABLE TO USE O.S.B. PANELS AS A SUBSTITUTE FOR PLYWOOD PANELS.

SHEAR WALL SCHEDULE

TYPE	DESCRIPTION	TOP PLATE CONNECTION	ANCHOR BOLTS @ FOUNDATION
1	1/2" PLYWOOD WITH 8d @ 6" & 12" O.C. STRUCT. I (340 LB/FT.) W/ 3x MEMBERS @ ADJOINING PANEL EGES WITH 3x SILL PLATE @ FOUNDATION	SIMPSON LS0 @ 18" O.C.	5/8" DIAM. @ 3' - 6" O.C.
2	1/2" PLYWOOD WITH 10d @ 4" & 12" O.C. STRUCT. I (510 LB/FT.) W/ 3x MEMBERS @ ADJOINING PANEL EGES WITH 3x SILL PLATE @ FOUNDATION	SIMPSON LS0 @ 12" O.C.	5/8" DIAM. @ 2' - 6" O.C.
3	1/2" PLYWOOD WITH 10d @ 3" & 12" O.C. STRUCT. I (666 LB/FT.) W/ 3x MEMBERS @ ADJOINING PANEL EGES WITH 3x SILL PLATE @ FOUNDATION	SIMPSON LS0 @ 8" O.C.	5/8" DIAM. @ 24" O.C.

No.	Description	Date

REMODELING PROJECT

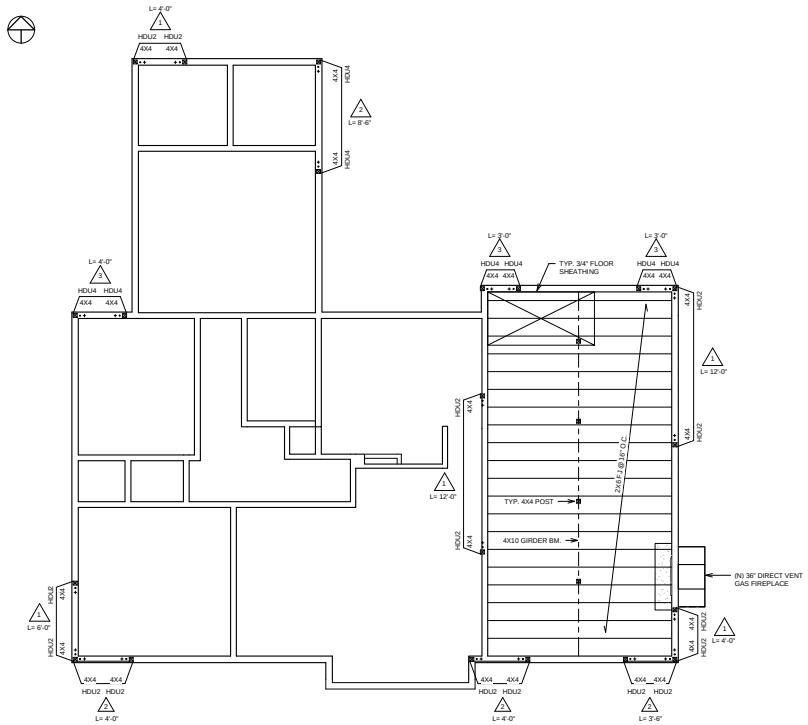
LONG BEACH, CA

FDN. PLAN

Project number	2016.1
Date	11.01.16
Drawn by	JH

S2.0

Scale 1/4" = 1'-0"



FLOOR FRAMING NOTES:

1. SEE S-1 FOR GENERAL NOTES.
2. SEE S-5 FOR TYPICAL DETAILS.
3. SEE ARCHITECTURAL AND MECHANICAL PLANS FOR FLOOR PENETRATION SIZES AND LOCATIONS.
4. VERIFY ALL DIMENSIONS ON SITE AND NOTIFY ARCHITECT AND ENGINEER OF ANY CONFLICTING CONDITIONS AND/OR DIMENSIONS.
5. FACE GRAIN OF PLYWOOD SHALL BE PERPENDICULAR TO SUPPORTS. FLOOR SHALL HAVE TONGUE AND GROOVE OR BLOCKED PANEL EDGES.
6. WALL TOP PLATE ELEVATION AT 8'-0" ABOVE F.F. UNLESS OTHERWISED NOTED ON PLANS.
7. FLOOR DESIGN LOADS:
   D = 12 PSF (AT JOISTS)
   L = 40 PSF
8. ELEVATED FLOOR STRUCTURES HAVE NOT BEEN DESIGNED FOR SPECIFIC VIBRATION EFFECTS FROM MECHANICAL EQUIPMENT OR SPECIAL OCCUPANCIES SUCH AS GYMNASIUMS, AEROBICS OR DANCE STUDIOS.

No.	Description	Date

REMODELING PROJECT

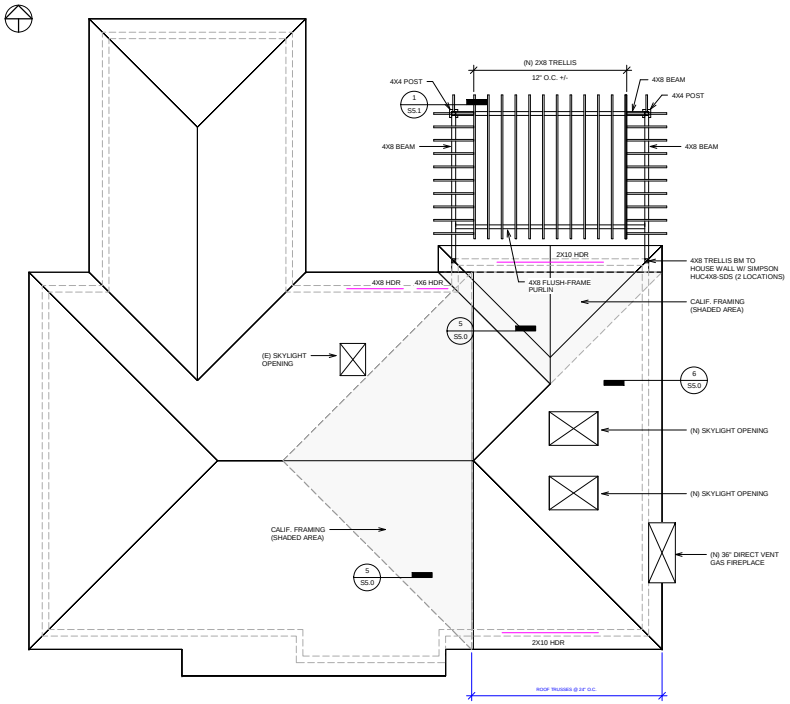
LONG BEACH, CA

FRAMING PLAN

Project number	2016.1
Date	11.01.16
Drawn by	JH

S3.0

Scale 1/4" = 1'-0"



ROOF FRAMING NOTES:

1. SEE S-1 FOR GENERAL NOTES.
2. SEE S-5 FOR TYPICAL DETAILS.
3. SEE ARCHITECTURAL AND MECHANICAL PLANS FOR FLOOR PENETRATION SIZES AND LOCATIONS.
4. VERIFY ALL DIMENSIONS ON SITE AND NOTIFY ARCHITECT AND ENGINEER OF ANY CONFLICTING CONDITIONS AND/OR DIMENSIONS.
5. ROOF SHEATHING SHALL CONSIST OF MIN. 1/2" THICK CDX PLYWOOD w/ 10d @ 6", 6", 12" NAILING & BLOCKED.
6. ROOF DIAPHRAGM NAILING TO BE INSPECTED BEFORE COVERING. FACE GRAIN OF PLYWOOD SHALL BE PERPENDICULAR TO SUPPORTS.
7. ROOF DESIGN LOADS:
   D = 15 PSF (AT JOISTS)
   L = 20 PSF

No.	Description	Date

REMODELING PROJECT

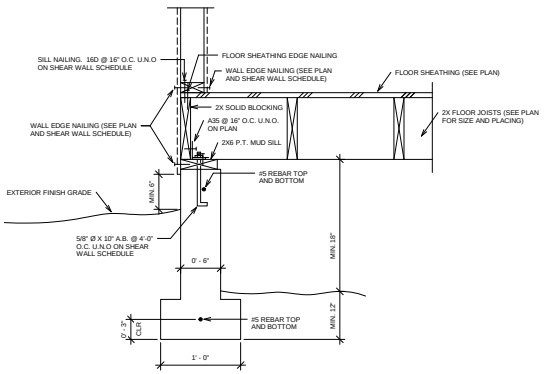
LONG BEACH, CA

ROOF FRAMING

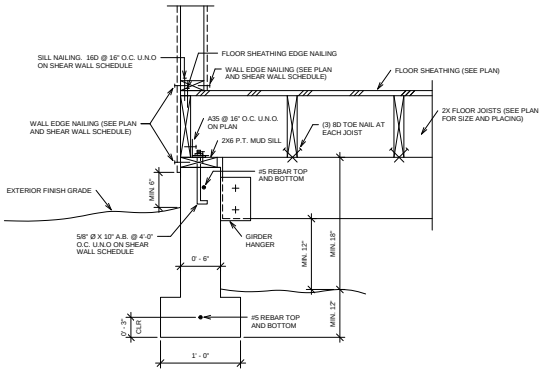
Project number	2016.1
Date	11.01.16
Drawn by	JH

S4.0

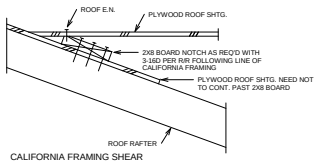
Scale 1/4" = 1'-0"



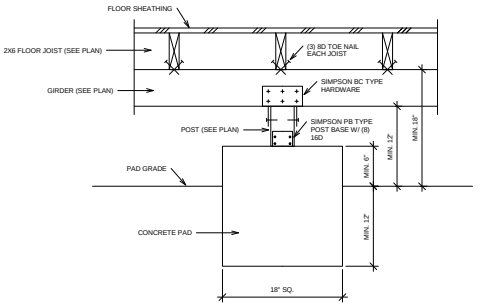
(2) FOUNDATION AND SHEAR TRANSFER DETAIL
4 1 1/2" = 1'-0"



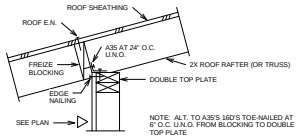
FOUNDATION AND SHEAR TRANSFER DETAIL
1 1 1/2" = 1'-0"



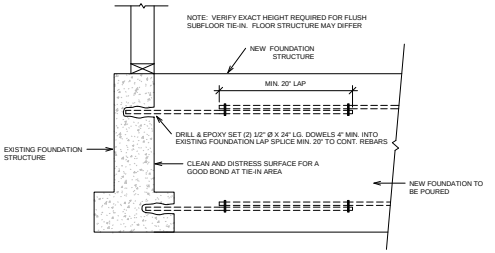
CALIFORNIA FRAMING SHEAR TRANSFER
5 1 1/2" = 1'-0"



GIRDER - PIER DETAIL
2 1 1/2" = 1'-0"



SHEAR TRANSFER
6 1 1/2" = 1'-0"



TYPICAL FOOTING TIE-IN DETAIL
3 1 1/2" = 1'-0"

No.	Description	Date

REMODELING PROJECT

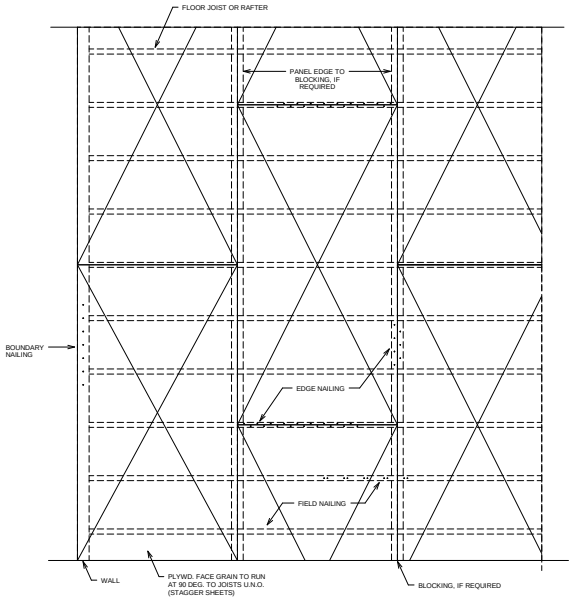
LONG BEACH, CA

STRUCTURAL DETAILS

Project number	2016.1
Date	11.01.16
Drawn by	JH

S5.0

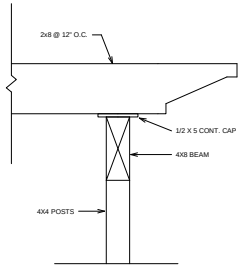
Scale 1 1/2" = 1'-0"



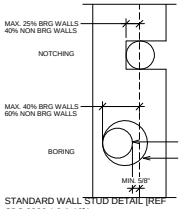
NOTES:

1) PLYWOOD THICKNESS AND GRADE PER PLAN
2) ALL PLYWOOD SHEETS TO BE 4'-0" x 8'-0" EXCEPT WHERE JOB CONDITIONS PROHIBIT.
3) NAILING PER SPECIFICATIONS, FRAMING PLAN NOTES AND TYPICAL PLYWOOD NAILING DETAIL.
4) IF BLOCKED DIAPHRAGM IS REQUIRED: PROVIDE 2X FULL DEPTH @ 8'-0" O.C. & 3X4 FLAT BLOCKING AT OTHER PANEL EDGES.
5) FRAMING AT ADJOINING PANEL EDGES SHALL BE 3-IN OR WIDER & NAILS SHALL BE STAGGERED WHERE:
   A. NAILS ARE SPACED 2-IN OR 2 1/2-IN ON CENTER
   B. 10d NAILS HAVING PENTRATION INTO FRAMING OF MORE THAN 1 5/8-IN ARE SPACED 3-IN OR LESS ON CENTER

④ TYP. FLOOR & ROOF SHEATHING
1 1/2" = 1'-0"

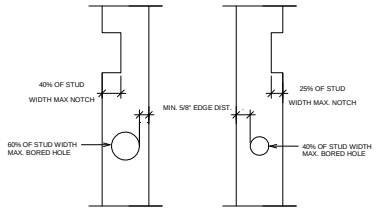


① POST DETAIL
1 1/2" = 1'-0"



NOTE: IF WIDER STUDS ARE USED THAN WOULD BE REQUIRED FOR THE APPLICATION THEN ONLY THE REQUIRED STUD WIDTH WILL BE SUBJECT TO THE LIMITATION ON DEPTH OF CUTTING OR NOTCHING

② STANDARD WALL STUD DETAIL [REF CBC 2326.1.9 & 10]1
3" = 1'-0"

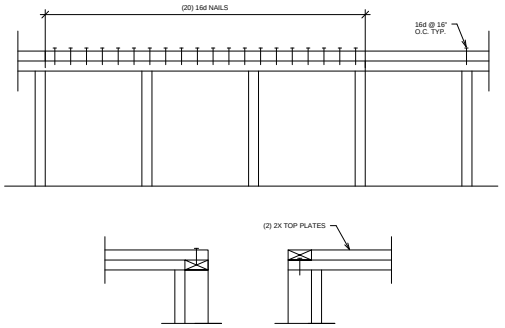


NOTES:

1) NOTCHES AND HOLES SHALL NOT OCCUR AT THE SAME LOCATION ON A STUD
2) ANY STUD MAY BE BORED WITH A MAXIMUM HOLE OF 60% OF THE STUD WIDTH IF THE STUD IS DOUBLED AND ONLY TWO SUCCESIVE STUDS ARE SO BORED.

% OF STUD WIDTH	2x4	2x6
25%	7/8"	1 3/8"
40%	1 3/8"	2 1/8"
60%	2"	3 1/4"

⑤ TYP. NOTCHING & BORING OF STUDS
1 1/2" = 1'-0"



③ TYP. DOUBLE TOP PLATE SPLICE & CORNER LAP
1 1/2" = 1'-0"

No.	Description	Date

REMODELING PROJECT

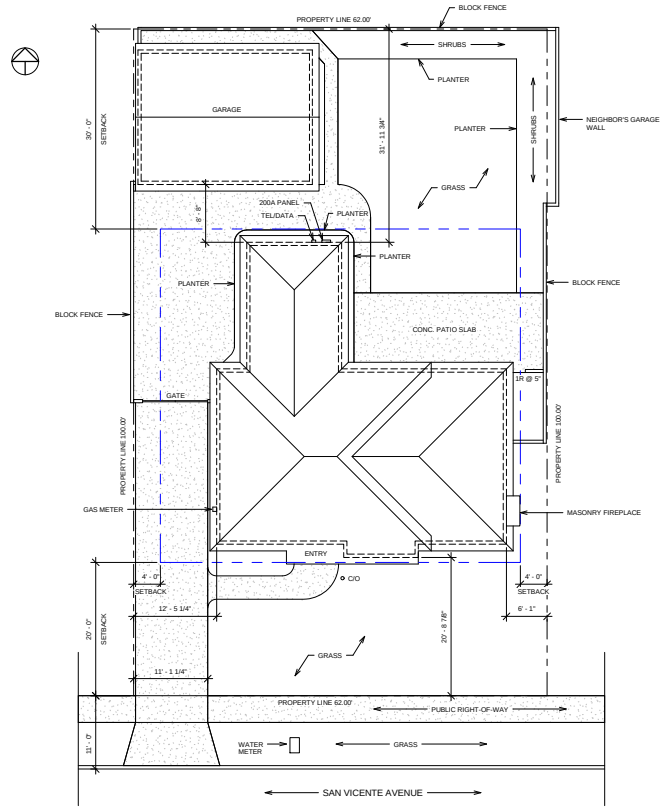
LONG BEACH, CA

STRUCTURAL DETAILS

Project number	2016.1
Date	11.01.16
Drawn by	JH

S5.1

Scale As indicated



No.	Description	Date

REMODELING PROJECT

LONG BEACH, CA

(E) SITE PLAN

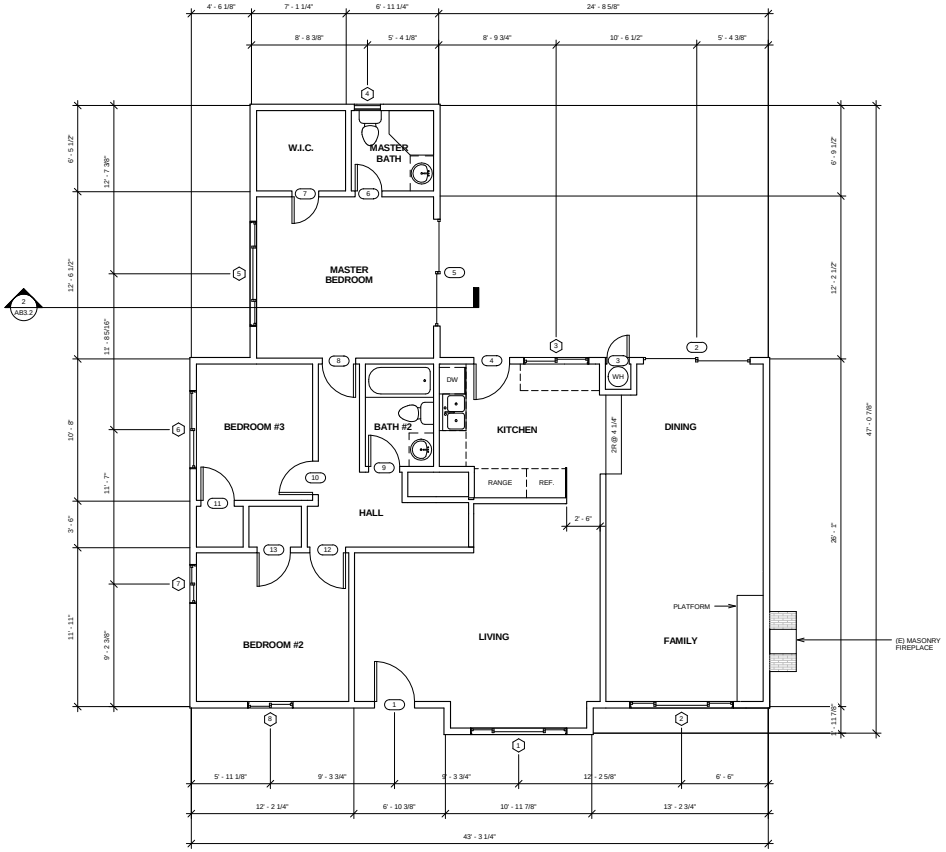
Project number	2016.1
Date	11.01.16
Drawn by	JH

AB1.0

Scale 1/8" = 1'-0"

(E) Door Schedule						
Mark	Width	Height	Operation	Finish	Material	Comments
1	3' - 0"	6' - 8"	Single-Flush	Paint [P]	Solid-Core [SC]	Existing [E]
2	8' - 0"	6' - 8"	Sliding-2 Panel	–	Vinyl [V]	E
3	1' - 8"	5' - 0"	Single-Flush	P	HC	E
4	2' - 8"	6' - 8"	Single-Flush	P	Hollow-Core [HC]	E
5	8' - 0"	6' - 8"	Sliding-2 Panel	–	V	E
6	2' - 0"	6' - 8"	Single-Flush	P	HC	E
7	2' - 0"	6' - 8"	Single-Flush	P	HC	E
8	2' - 6"	6' - 8"	Single-Flush	P	HC	E
9	2' - 4"	6' - 8"	Single-Flush	P	HC	E
10	2' - 6"	6' - 8"	Single-Flush	P	HC	E
11	2' - 6"	6' - 8"	Single-Flush	P	HC	E
12	2' - 8"	6' - 8"	Single-Flush	P	HC	E
13	2' - 6"	6' - 8"	Single-Flush	P	HC	E
14	16' - 0"	7' - 0"	Overhead-Sectional	P	Steel	E (Garage)
15	2' - 8"	6' - 8"	Single-Flush	P	SC	E (Garage)

(E) Window Schedule					
Mark	Width	Height	Family	Material	Comments
1	7' - 2 3/4"	4' - 11"	Horizontal Slider Triple	Alum. [A]	Existing [E]
2	7' - 9 1/4"	3' - 10 3/4"	Horizontal Slider Triple	A	E
3	4' - 10 1/2"	3' - 5"	Slider with Trim	Alum. [A]	Existing [E]
4	1' - 11 1/2"	2' - 11"	Louvered	A	E
5	7' - 10 1/4"	1' - 10 3/4"	Horizontal Slider Triple	A	E
6	5' - 10 1/4"	1' - 10 1/2"	Slider with Trim	A	E
7	2' - 11"	4' - 3 1/2"	Slider with Trim	A	E
8	3' - 5"	4' - 3"	Slider with Trim	A	E
9	7' - 10 1/4"	1' - 10 3/4"	Horizontal Slider Triple	A	E (Garage)



1 (E) Floor Plan
1/4" = 1'-0"

No.	Description	Date

REMODELING PROJECT

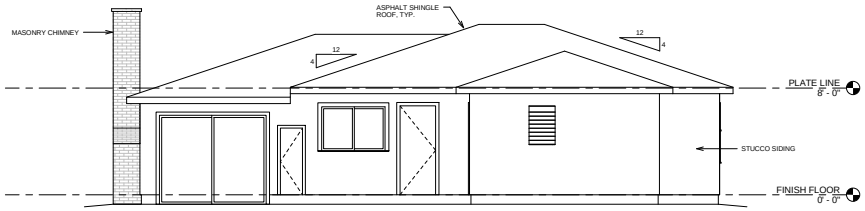
LONG BEACH, CA

(E) FIRST FLOOR

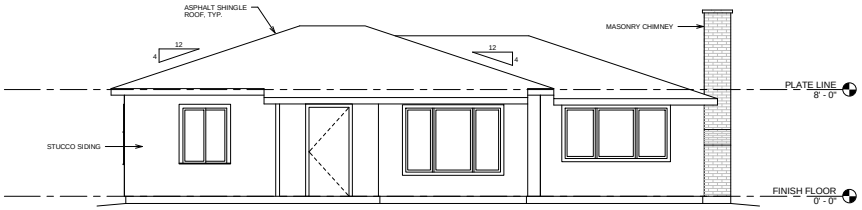
Project number	2016.1
Date	11.01.16
Drawn by	JH

AB1.1

Scale 1/4" = 1'-0"



1 (E) North
1/4" = 1'-0"



2 (E) South
1/4" = 1'-0"

No.	Description	Date

REMODELING PROJECT

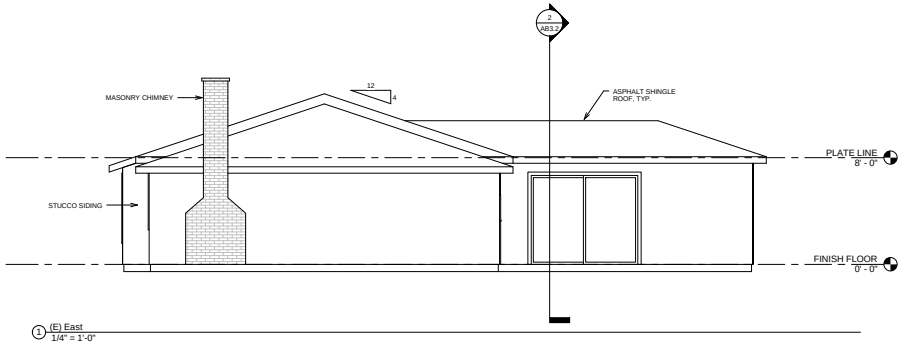
LONG BEACH, CA

(E) ELEVATIONS

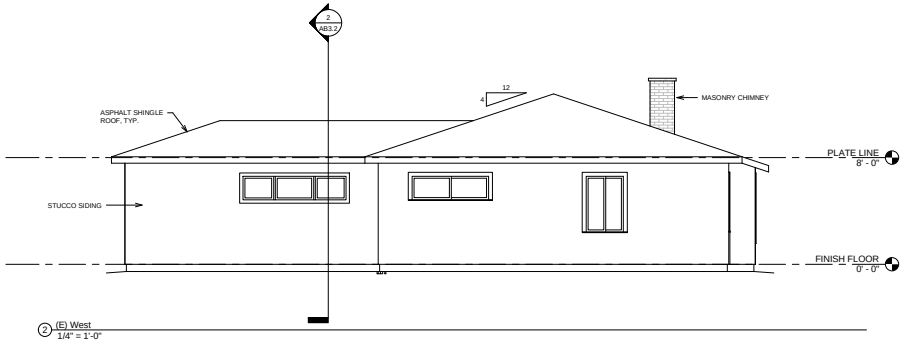
Project number	2016.1
Date	11.01.16
Drawn by	JH

AB2.1

Scale 1/4" = 1'-0"



1 (E) East
1/4" = 1'-0"



2 (E) West
1/4" = 1'-0"

No.	Description	Date

REMODELING PROJECT

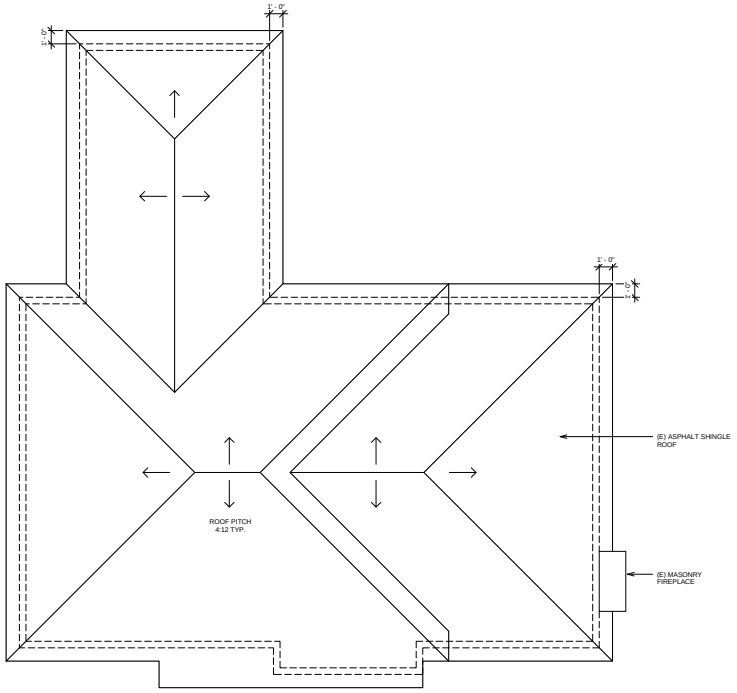
LONG BEACH, CA

(E) ELEVATIONS

Project number	2016.1
Date	11.01.16
Drawn by	JH

AB2.2

Scale 1/4" = 1'-0"



No.	Description	Date

REMODELING PROJECT

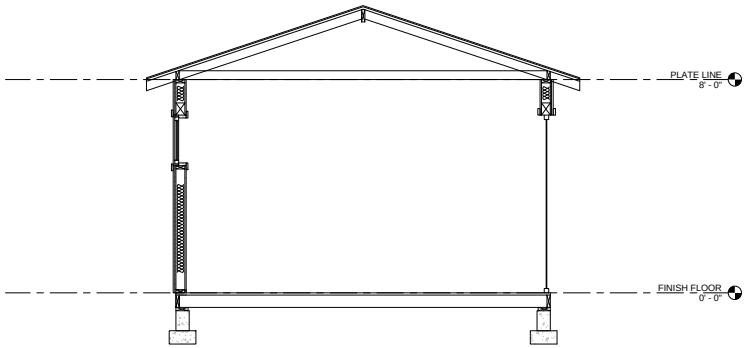
LONG BEACH, CA

(E) ROOF

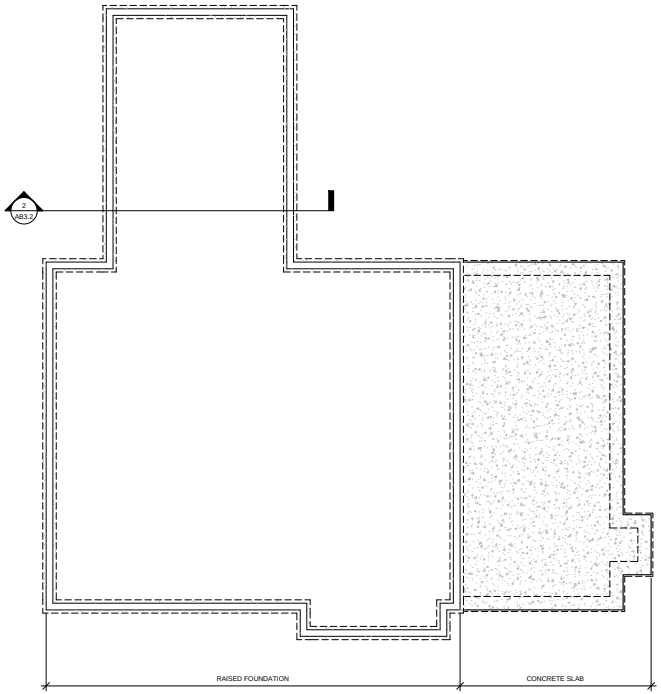
Project number	2016.1
Date	11.01.16
Drawn by	JH

AB3.1

Scale 1/4" = 1'-0"



2 (E) Section
1/2" = 1'-0"



1 Foundation Plan
1/4" = 1'-0"

No.	Description	Date

REMODELING PROJECT

LONG BEACH, CA

(E) FDN. & SECTION

Project number	2016.1
Date	11.01.16
Drawn by	JH

AB3.2

Scale As indicated

STRUCTURAL CALCULATIONS

FOR

LONG BEACH REMODEL

ARCE 415
SR. PROJECT
DECEMBER 1, 2016

JOHN HINRICHS

TABLE OF CONTENTS

PROJECT DESCRIPTION / DATA

Project: Residential Remodel & Addition

Location: Long Beach, CA

Architect: --

Owner: --

Jurisdiction: Long Beach, CA

Building Code: 2013 California Building Code (CBC)

Selected IBC References:

Loads:	ASCE 7-10
Steel:	AISC 360-10
	AISC 341-10 (Seismic)
Wood:	NDS -15
	NDS Supplement - 15
	NDS SDPWS -15 (Wind & Seismic)
Concrete:	ACI 318-14
	ACI 530

Structural Systems:

Vertical Wood stud bearing walls
Raised foundation with spread footings

Lateral Wood shear walls

Soils Engineer: --
Soils Report No.: --
Soils Report Date: --
Soils Bearing: Assume 1500 PSF bearing capacity per Table 1806-2
Other Soils Data: Assume soil site Class D

STRUCTURAL MATERIALS

Lumber:

Visually Graded Douglas Fir – Larch
2x Framing DF-L #2
4x framing DF-L #1
Posts/Timbers DF-L #1
Glu-Lam Beams – Visual Comb. 24F-V4 DF/DF
Hardware: Simpson "Strong-Tie"

Masonry:

Grade "N" Units: f'm = 1,500 psi (all cells grouted)

Concrete:
(f'c in 28 days)

Roof Deck	3000 psi	Lightweight (110 pcf)
Floor Deck	3000 psi	Lightweight (110 pcf)
Beams	3000 psi	
Columns	4000 psi	
Walls	4000 psi	
Foundation	2500 psi	

Reinforcing:

ASTM A615 – Grade 60 ASTM A706 – Grade 60

Steel:

Structural	ASTM A992 for WF beams	Fy = 50 ksi
	ASTM A36 for channels, angles	Fy = 36 ksi
Pipes	ASTM A53	Fy = 35 ksi
Tubes	ASTM A500 Grade B	Fy = 46 ksi
Bolts	ASTM A307	Per code
	ASTM A325SC	Per code
Metal Studs	SSMA Member	Studs < 18Ga, Fy = 33ksi Studs > 16Ga, Fy = 50 ksi

Note: Unless noted otherwise in structural calculations or drawings.

BUILDING WEIGHTS

ROOF DEAD LOAD TAKE OFF (PSF)

Material		Unit Weight (PSF)
Comp. Roofing		3.5
Insulation, 10-inch Fiberglass Batt		0.5
1/2" Plywood / Sheathing		1.5
Pre-fab Trusses		3.0
	Total, Sloped Members	8.5
	Horizontal Conversion	9.0
Gypsum Wallboard		2.5
MEP & Misc.		3.5
	Total to Rafters/Joists	**15.0**
Beams		3.0
	Total to Beams	**18.0**
Columns (King Post)		1.0
	Total to Columns	**19.0**
LIVE LOADS		
Roof (Reducible)		**20.0**

FLOOR DEAD LOAD TAKE OFF (PSF)

Material		Unit Weight
Flooring - Hardwood		4.0
3/4" Plywood / Sheathing		3.0
Insulation, 6-inch Fiberglass Batt		0.5
MEP & Misc.		3.0
Joists 2x6 @ 16" O.C.		1.5
	Total to Joists	**12.0**
Beams		3.0
	Total to Beams	**15.0**
Columns		2.0
	Total to Columns	**17.0**
LIVE LOADS		
Residential (Reducible)		**40.0**

EXTERIOR WALL DEAD LOAD TAKE OFF (PSF)

Material		Unit Weight
Gypsum Wallboard, 1/2"		2.5
Studs, 2x4 @ 16" O.C.		1.0
1/2" Plywood / Sheathing		1.5
Stucco, 7/8"		10.0
Insulation, 4-inch Fiberglass Batt		0.5
Misc.		2.5
	Total to Joists	**18.0**

INTERIOR WALL DEAD LOAD TAKE OFF (PSF)

Material		Unit Weight
Gypsum Wallboard, 1/2"		5.0
Studs, 2x4 @ 16" O.C.		1.0
Insulation, 4-inch Fiberglass Batt (Sound Barrier)		0.5
Misc.		1.5
	Total to Joists	**8.0**

61.1

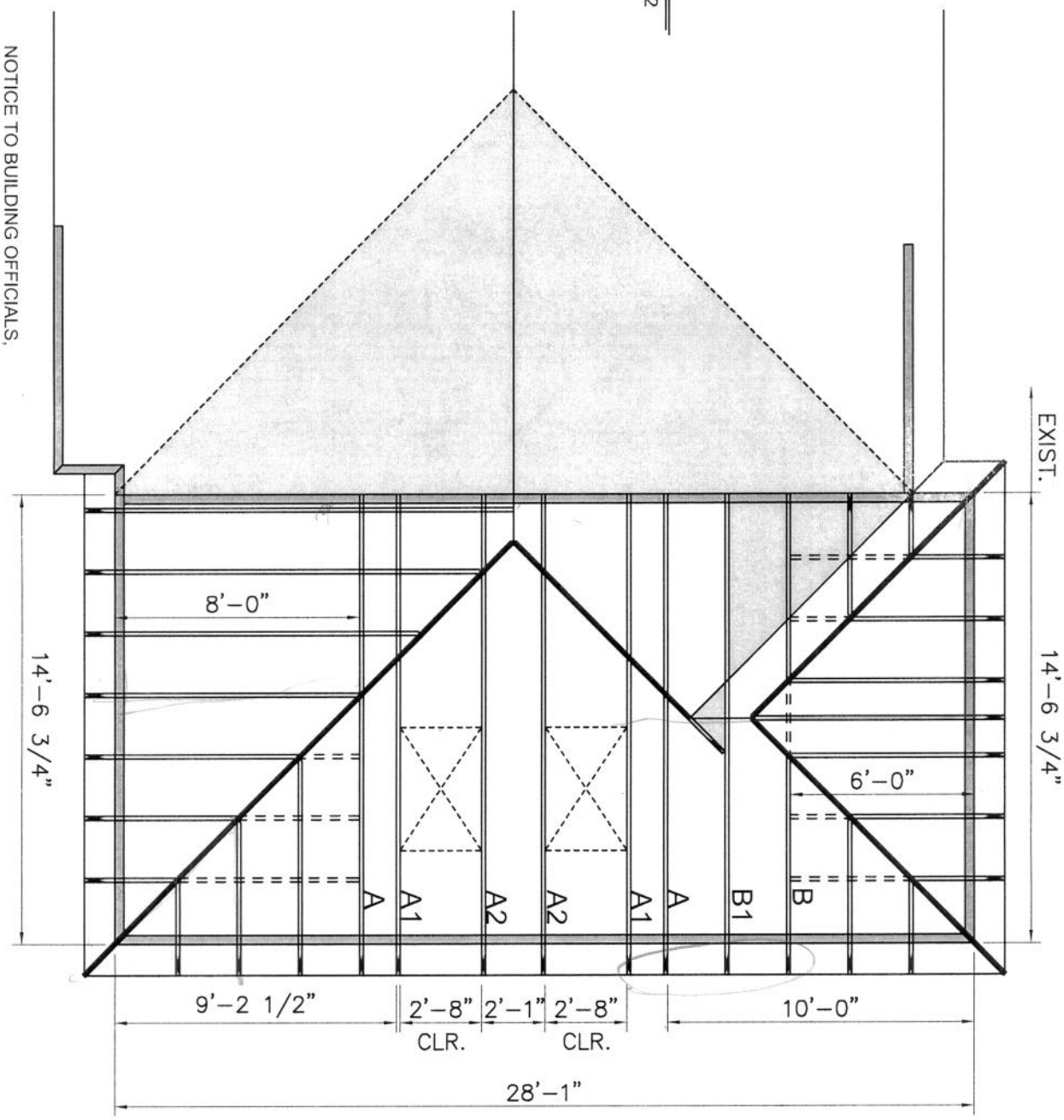
NOTES:

ROOF PITCH : 4:12
12" OVERHANG
2x4 TOP CHORDS
3 15/16" HEEL HEIGHT

LOADING:

TCLL: 20
TCDL: 14
BCDL: 10
1.25 DURATION

NOTICE TO BUILDING OFFICIALS, ARCHITECTS, AND ENGINEERS:
NON-STRUCTURAL DRAWING INTENDED FOR TRUSS LOCATION INFORMATION ONLY.



REVISIONS	
1	
2	
3	

STONE TRUSS
760-521-4918
951-255-6958

ROOF TRUSS LAYOUT

LONG BEACH REMODEL
XXX
LONG BEACH, CA

Designer: SGH
Date: Mar. 30, 2016
Scale: NTS
Job #: T920

1 OF 1

6.12

Alpine, an ITW Company
8351 Rovana Circle
Sacramento, CA 95828
Phone: (800)877-3678 (916)387-0116
Fax: (916)387-1110
sacseals@itwbcg.com

Site Information:

Customer: Stone Truss	*Job Number:* T920
JobDescription: LONG BEACH REMODEL	
Address:	*City, State, Zip:* LONG BEACH, CA 90815

Job Engineering Criteria:

Design Code: CBC 2013 Res		*View Version:* 15.01.01.0611.00	*JRef #:* 1VPf92820001
Wind Standard: ASCE 7-10	*Wind Speed (mph):* 110	*Roof Load (psf):* 20.00-14.00- 0.00-10.00	*Floor Load (psf):* None

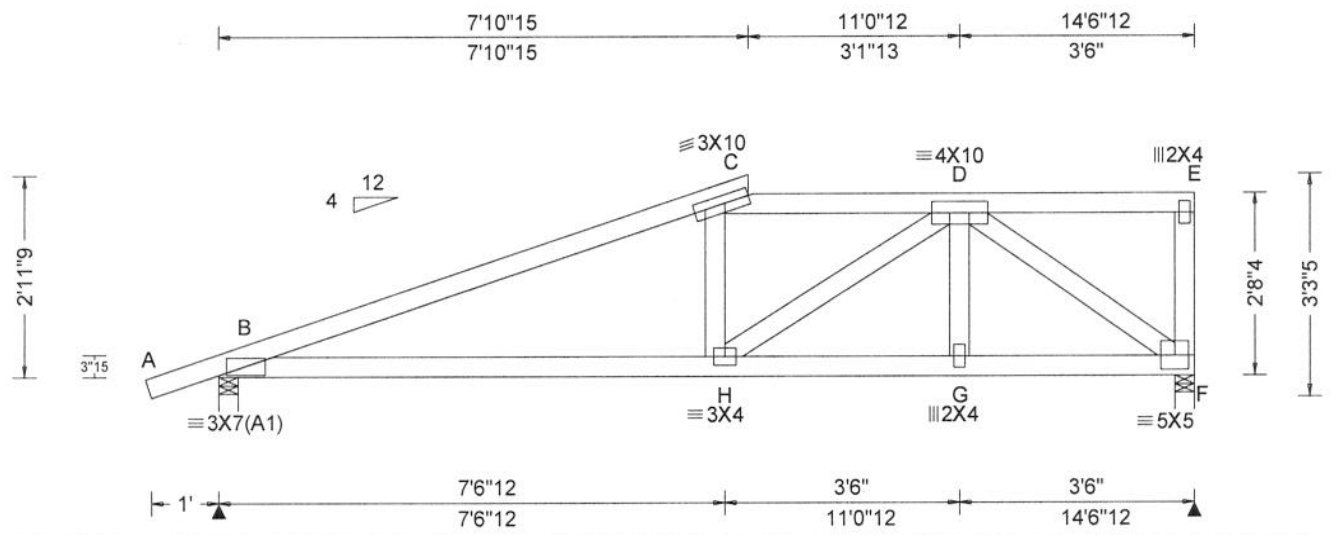
This package contains a job notes page, 5 truss drawings and 1 details.

Item	Seal #	Truss
1	090.16.1728.21503	A MONO HIP H8
3	090.16.1728.29487	A2 HP H12
5	090.16.1728.41957	B1 COMN

Item	Seal #	Truss
2	090.16.1728.25540	A1 HIP 9-2-8
4	090.16.1728.36687	B HIP H6

Printed 3/31/2016 9:10:36 AM

Job Number: T920 LONG BEACH REMODEL **Truss Label:** A MONO HIP H8	Ply: 1 Qty: 2	SEQN: 270820 / T42 CHIP FROM: SGH	Cust: R9282 JRef: 1VPf92820001 DrwNo: 090.16.1728.21503 BFR / GWH 03/30/2016



Loading Criteria (psf)
TCLL: 20.00
TCDL: 14.00
BCLL: 0.00
BCDL: 10.00
Des Ld: 44.00
NCBCLL: 10.00
Soffit: 2.00
Load Duration: 1.25
Spacing: 24.0 "

Wind Criteria
Wind Std: ASCE 7-10
Speed: 110 mph
Enclosure: Closed
Risk Category: II
EXP: C
Mean Height: 15.00 ft
TCDL: 8.4 psf
BCDL: 6.0 psf
MWFRS Parallel Dist: 0 to h/2
C&C Dist a: 3.00 ft
Loc. from endwall: Any
GCpi: 0.18
Wind Duration: 1.33

Snow Criteria (Pg,Pf in PSF)
Pg: NA Ct: NA CAT: NA
Pf: NA Ce: NA
Lu: NA Cs: NA
Snow Duration: NA

Code / Misc Criteria
Bldg Code: CBC 2013 Res
TPI Std: 2007
Rep Factors Used: No
FT/RT:20(0)/0(0)
Plate Type(s):
WAVE

Defl/CSI Criteria

PP Deflection in	loc	L/defl	L/#
VERT(LL): 0.053	C	999	240
VERT(TL): 0.184	C	939	180
HORZ(LL): 0.019	F	-	-
HORZ(TL): 0.065	F	-	-

Creep Factor: 2.0
Max TC CSI: 0.806
Max BC CSI: 0.734
Max Web CSI: 0.730

VIEW Ver: 15.01.01C.0611.00

▲ Maximum Reactions (lbs)

Loc	R	/ U	/ Rw	/ Rh	/ RL	/ W
B	1413	/ 161	/ 461	/ -	/ 142	/ 3.5
F	1802	/ 112	/ 367	/ -	/ -	/ 3.5

Wind reactions based on C&C
B Min Brg Width Req = 1.5
F Min Brg Width Req = 1.9
Bearings B & F are a rigid surface.

Members not listed have forces less than 375#

Maximum Top Chord Forces Per Ply (lbs)

Chords	Tens.	Comp.	Chords	Tens.	Comp.
C - D	210	- 2687	B - C	173	- 2887

Maximum Bot Chord Forces Per Ply (lbs)

Chords	Tens.	Comp.	Chords	Tens.	Comp.
B - H	2670	- 210	G - F	2104	- 135
H - G	2104	- 135			

Maximum Web Forces Per Ply (lbs)

Webs	Tens.	Comp.	Webs	Tens.	Comp.
H - D	684	- 89	D - F	163	- 2534

Lumber

Top chord 2x4 DF-L #1&Bet.(g)
Bot chord 2x4 DF-L #1&Bet.(g)
Webs 2x4 DF-L Standard(g)

Plating Notes

Connectors in green lumber (g) designed using NDS/TPI reduction factors.

Loading

#1 hip with 7-10-15 setback supports jack trusses, or rafters and joists, spanning between this truss and the end wall. Corner(s) framed with a hipJack supporting corner rafters and joists, or open-end jacks.

Use this design for common hip trusses @ 24.0" OC. Extend sloping TC of truss and jacks to hip rafter. Support extensions every 4.00 ft to flat TC. Spacing of supports originates from #1 hip. Attach 2x4 lateral bracing to flat TC @ 32" OC with 2-16d Box or Gun nails(0.135"x3.5",min.) and diagonally brace per DWG. BRCALHIP1014. Support hip rafter with cripples at 5-7-14 OC.

Purlins

In lieu of structural panels or rigid ceiling use purlins to brace all flat TC @ 32" OC, all BC @ 120" OC.

Wind

Member design based on both MWFRS and C&C.

Right end vertical not exposed to wind pressure.

Additional Notes

Building designer is responsible for conventional framing.

****WARNING**** READ AND FOLLOW ALL NOTES ON THIS DRAWING!
****IMPORTANT**** FURNISH THIS DRAWING TO ALL CONTRACTORS INCLUDING THE INSTALLERS

Trusses require extreme care in fabricating, handling, shipping, installing and bracing. Refer to and follow the latest edition of BCSI (Building Component Safety Information, by TPI and SBCA) for safety practices prior to performing these functions. Installers shall provide temporary bracing per BCSI. Unless noted otherwise,top chord shall have properly attached structural sheathing and bottom chord shall have a properly attached rigid ceiling. Locations shown for permanent lateral restraint of webs shall have bracing installed per BCSI sections B3, B7, or B10, as applicable. Apply plates to each face of truss and position as shown above and on the Joint Details, unless noted otherwise. Refer to drawings 160A-Z for standard plate positions.

Alpine, a division of ITW Building Components Group Inc. shall not be responsible for any deviation from this drawing,any failure to build the truss in conformance with ANSI/TPI 1, or for handling, shipping, installation and bracing of trusses**A seal on this drawing or cover page listing this drawing, indicates acceptance of professional engineering responsibility solely for the design shown. The suitability and use of this drawing for any structure is the responsibility of the Building Designer per ANSI/TPI 1 Sec.2.**

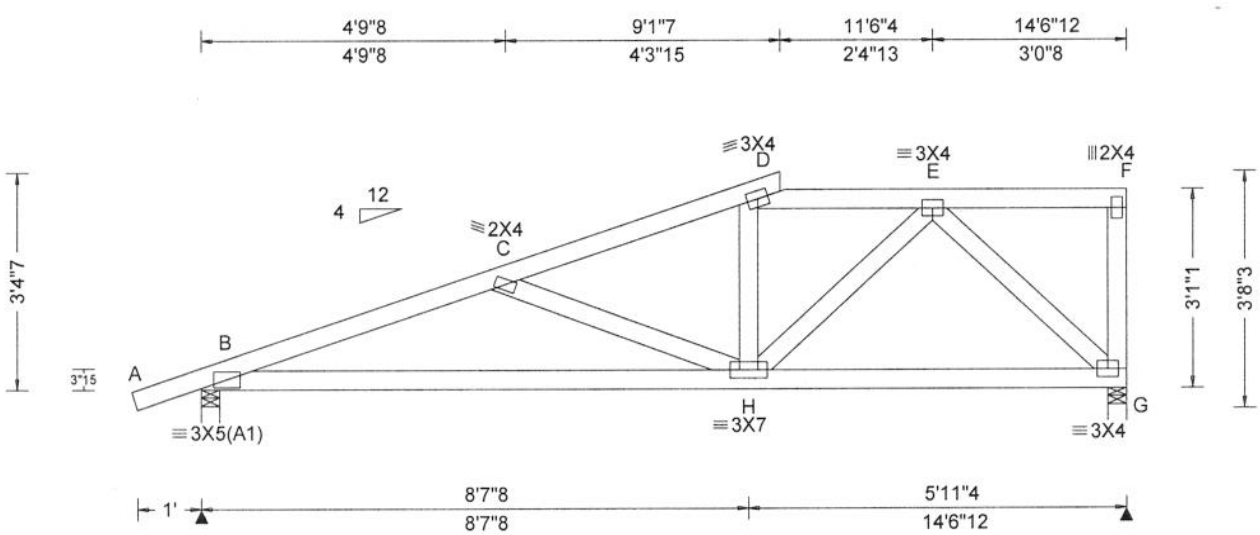
For more information see this job's general notes page and these web sites: ALPINE: www.alpineitw.com; TPI: www.tpinst.org; SBCA: www.sbcindustry.com; ICC: www.iccsafe.org

Stone Truss
507 Jones Road
CA 92054

ALPINE
AN ITW COMPANY
8351 Rovana Circle
Sacramento, CA 95828

61.4

Job Number: T920 LONG BEACH REMODEL **Truss Label:** A1 HIP 9-2-8	Ply: 1 Qty: 2	SEQN: 270823 / T43 CHIP FROM: SGH	Cust: R9282 JRef: 1VPf92820001 DrwNo: 090.16.1728.25540 BFR / GWH 03/30/2016



Loading Criteria (psf)

TCLL:	20.00
TCDL:	14.00
BCLL:	0.00
BCDL:	10.00
Des Ld:	44.00
NCBCLL:	10.00
Soffit:	2.00

Load Duration: 1.25
Spacing: 30.0 "

Wind Criteria
Wind Std: ASCE 7-10
Speed: 110 mph
Enclosure: Closed
Risk Category: II
EXP: C
Mean Height: 15.00 ft
TCDL: 8.4 psf
BCDL: 6.0 psf
MWFRS Parallel Dist: 0 to h/2
C&C Dist a: 3.00 ft
Loc. from endwall: Any
GCpi: 0.18
Wind Duration: 1.33

Snow Criteria (Pg,Pf in PSF)
Pg: NA Ct: NA CAT: NA
Pf: NA Ce: NA
Lu: NA Cs: NA
Snow Duration: NA

Code / Misc Criteria
Bldg Code: CBC 2013 Res
TPI Std: 2007
Rep Factors Used: No
FT/RT:20(0)/0(0)
Plate Type(s):
WAVE

Defl/CSI Criteria

PP Deflection in	loc	L/defl	L/#
VERT(LL): 0.031	C	999	240
VERT(TL): 0.105	C	999	180
HORZ(LL): 0.010	G	-	-
HORZ(TL): 0.033	G	-	-

Creep Factor: 2.0
Max TC CSI: 0.287
Max BC CSI: 0.826
Max Web CSI: 0.270

VIEW Ver: 15.01.01C.0611.00

▲Maximum Reactions (lbs)

Loc	R	/ U	/ Rw	/ Rh	/ RL	/ W
B	921	/ 188	/ 581	/ -	/ 198	/ 3.5
G	797	/ 15	/ 464	/ -	/ -	/ 3.5

Wind reactions based on C&C
B Min Brg Width Req = 1.5
G Min Brg Width Req = 1.5
Bearings B & G are a rigid surface.

Members not listed have forces less than 375#

Maximum Top Chord Forces Per Ply (lbs)

Chords	Tens.	Comp.	Chords	Tens.	Comp.
D - E	157	- 1003	C - D	115	- 1117
B - C	256	- 1678			

Maximum Bot Chord Forces Per Ply (lbs)

Chords	Tens.	Comp.	Chords	Tens.	Comp.
B - H	1551	- 358	H - G	693	- 82

Maximum Web Forces Per Ply (lbs)

Webs	Tens.	Comp.	Webs	Tens.	Comp.
C - H	224	- 598	E - G	114	- 934
H - E	439	- 102			

Lumber

Top chord 2x4 DF-L #1&Bet.(g)
Bot chord 2x4 DF-L #1&Bet.(g)
Webs 2x4 DF-L Standard(g)

Plating Notes

Connectors in green lumber (g) designed using NDS/TPI reduction factors.

Loading

Bottom chord checked for 10.00 psf non-concurrent live load.

Purlins

In lieu of structural panels or rigid ceiling use purlins to brace all sloping TC @ 24" OC, all flat TC @ 32" OC, all BC @ 120" OC.

Wind

Member design based on both MWFRS and C&C.

Right end vertical not exposed to wind pressure.

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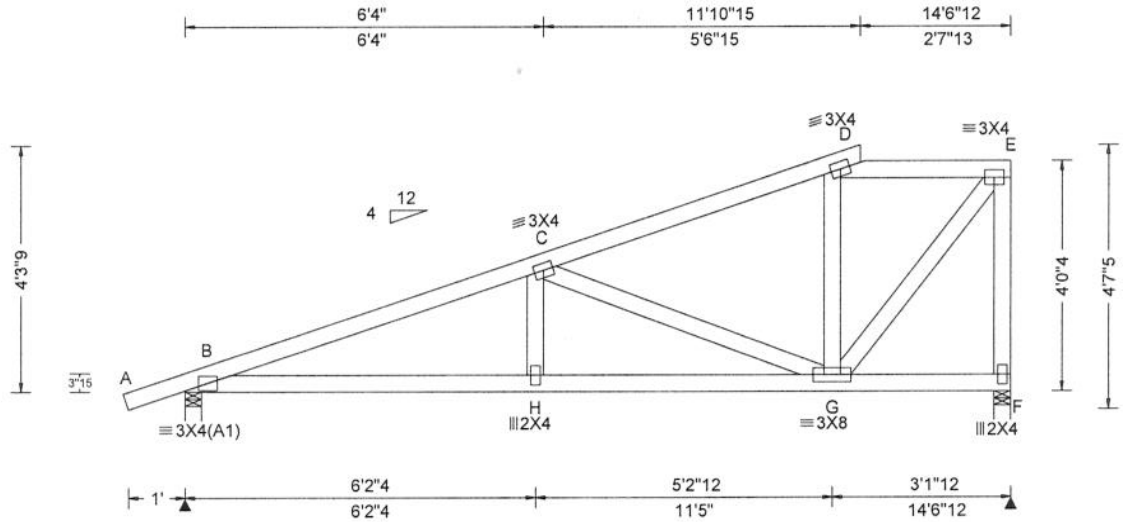
For more information see this job's general notes page and these web sites: ALPINE: www.alpineitw.com; TPI: www.tpinst.org; SBCA: www.sbcindustry.com; ICC: www.iccsafe.org

Stone Truss
507 Jones Road
CA 92054

ALPINE
AN ITW COMPANY
8351 Rovana Circle
Sacramento, CA 95828

61.5

Job Number: T920 LONG BEACH REMODEL **Truss Label:** A2 HP H12	Ply: 1 Qty: 2	SEQN: 270825 / T44 CHIP FROM: SGH	Cust: R9282 JRef: 1VPf92820001 DrwNo: 090.16.1728.29487 BFR / GWH 03/30/2016



Loading Criteria (psf)

TCLL:	20.00
TCDL:	14.00
BCLL:	0.00
BCDL:	10.00
Des Ld:	44.00
NCBCLL:	10.00
Soffit:	2.00

Load Duration: 1.25
Spacing: 30.0 "

Wind Criteria
Wind Std: ASCE 7-10
Speed: 110 mph
Enclosure: Closed
Risk Category: II
EXP: C
Mean Height: 15.00 ft
TCDL: 8.4 psf
BCDL: 6.0 psf
MWFRS Parallel Dist: 0 to h/2
C&C Dist a: 3.00 ft
Loc. from endwall: Any
GCpi: 0.18
Wind Duration: 1.33

Snow Criteria (Pg,Pf in PSF)
Pg: NA Ct: NA CAT: NA
Pf: NA Ce: NA
Lu: NA Cs: NA
Snow Duration: NA

Code / Misc Criteria
Bldg Code: CBC 2013 Res
TPI Std: 2007
Rep Factors Used: No
FT/RT:20(0)/0(0)
Plate Type(s):
WAVE

Defl/CSI Criteria

PP Deflection in	loc	L/defl	L/#
VERT(LL): 0.034	H	999	240
VERT(TL): 0.115	H	999	180
HORZ(LL): 0.009	F	-	-
HORZ(TL): 0.031	F	-	-

Creep Factor: 2.0
Max TC CSI: 0.395
Max BC CSI: 0.505
Max Web CSI: 0.555

VIEW Ver: 15.01.01C.0611.00

▲ Maximum Reactions (lbs)

Loc	R	/ U	/ Rw	/ Rh	/ RL	/ W
B	922	/ 172	/ 588	/ -	/ 243	/ 3.5
F	796	/ 59	/ 490	/ -	/ -	/ 3.5

Wind reactions based on C&C
B Min Brg Width Req = 1.5
F Min Brg Width Req = 1.5
Bearings B & F are a rigid surface.

Members not listed have forces less than 375#

Maximum Top Chord Forces Per Ply (lbs)

Chords	Tens.	Comp.	Chords	Tens.	Comp.
D - E	91	- 534	C - D	42	- 639
B - C	130	- 1622			

Maximum Bot Chord Forces Per Ply (lbs)

Chords	Tens.	Comp.	Chords	Tens.	Comp.
B - H	1478	- 273	H - G	1470	- 277

Maximum Web Forces Per Ply (lbs)

Webs	Tens.	Comp.	Webs	Tens.	Comp.
C - G	205	- 1023	E - F	74	- 767
G - E	814	- 140			

Lumber

Top chord 2x4 DF-L #1&Bet.(g)
Bot chord 2x4 DF-L #1&Bet.(g)
Webs 2x4 DF-L Standard(g)

Plating Notes

Connectors in green lumber (g) designed using NDS/TPI reduction factors.

Loading

Bottom chord checked for 10.00 psf non-concurrent live load.

Purlins

In lieu of structural panels or rigid ceiling use purlins to brace all sloping TC @ 24" OC, all flat TC @ 32" OC, all BC @ 120" OC.

Wind

Member design based on both MWFRS and C&C.

Right end vertical not exposed to wind pressure.

Stone Truss
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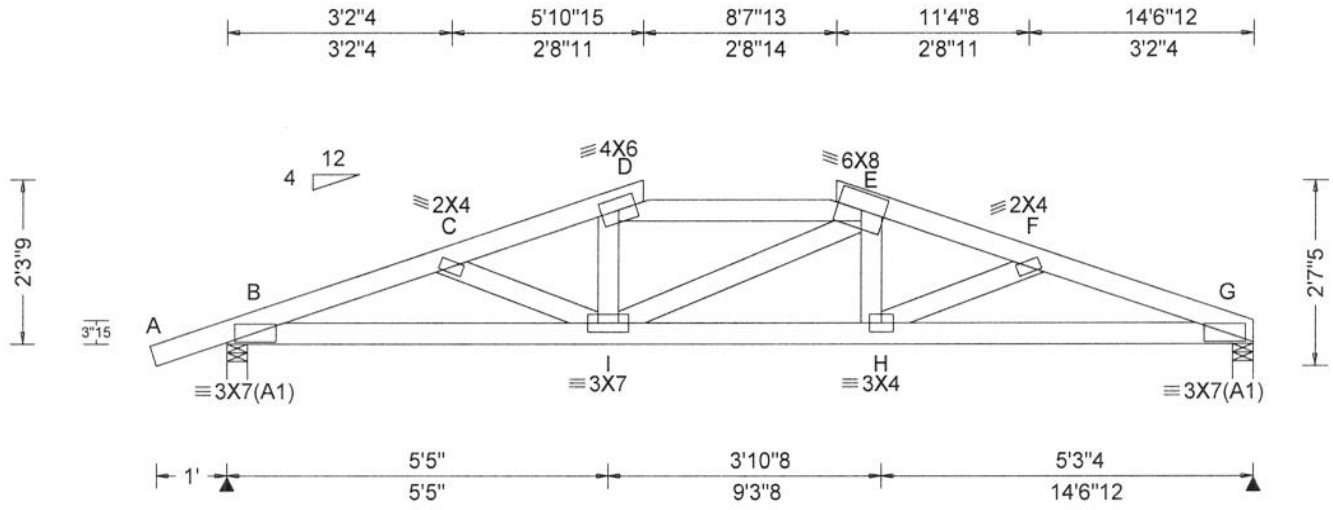
6L.6

Job Number: T920 LONG BEACH REMODEL **Truss Label:** B HIP H6	Ply: 1 Qty: 1	SEQN: 270827 / T45 CHIP FROM: SGH	Cust: R9282 JRef: 1VPf92820001 DrwNo: 090.16.1728.36687 BFR / GWH 03/30/2016



Loading Criteria (psf)

TCLL:	20.00
TCDL:	14.00
BCLL:	0.00
BCDL:	10.00
Des Ld:	44.00
NCBCLL:	10.00
Soffit:	2.00

Load Duration: 1.25
Spacing: 24.0 "

Wind Criteria
Wind Std: ASCE 7-10
Speed: 110 mph
Enclosure: Closed
Risk Category: II
EXP: C
Mean Height: 15.00 ft
TCDL: 8.4 psf
BCDL: 6.0 psf
MWFRS Parallel Dist: 0 to h/2
C&C Dist a: 3.00 ft
Loc. from endwall: Any
GCpi: 0.18
Wind Duration: 1.33

Snow Criteria (Pg,Pf in PSF)
Pg: NA Ct: NA CAT: NA
Pf: NA Ce: NA
Lu: NA Cs: NA
Snow Duration: NA

Code / Misc Criteria
Bldg Code: CBC 2013 Res
TPI Std: 2007
Rep Factors Used: No
FT/RT:20(0)/0(0)
Plate Type(s):
WAVE

Defl/CSI Criteria

PP Deflection in	loc	L/defl	L/#
VERT(LL): 0.066	D	999	240
VERT(TL): 0.230	D	743	180
HORZ(LL): 0.021	H	-	-
HORZ(TL): 0.073	H	-	-

Creep Factor: 2.0
Max TC CSI: 0.676
Max BC CSI: 0.476
Max Web CSI: 0.085

VIEW Ver: 15.01.01C.0611.00

▲Maximum Reactions (lbs)

Loc	R	/ U	/ Rw	/ Rh	/ RL	/ W
B	1288	/ 138	/ 439	/ -	/ 39	/ 3.5
G	1203	/ 93	/ 382	/ -	/ -	/ 3.5

Wind reactions based on C&C
B Min Brg Width Req = 1.5
G Min Brg Width Req = 1.5
Bearings B & G are a rigid surface.

Members not listed have forces less than 375#

Maximum Top Chord Forces Per Ply (lbs)

Chords	Tens.	Comp.	Chords	Tens.	Comp.
D - E	121	- 2672	E - F	95	- 2789
B - C	176	- 2870	F - G	175	- 2919
C - D	100	- 2817			

Maximum Bot Chord Forces Per Ply (lbs)

Chords	Tens.	Comp.	Chords	Tens.	Comp.
B - I	2680	- 134	H - G	2732	- 127
I - H	2606	- 10			

Lumber

Top chord 2x4 DF-L #1&Bet.(g)
Bot chord 2x4 DF-L #1&Bet.(g)
Webs 2x4 DF-L Standard(g)

Plating Notes

Connectors in green lumber (g) designed using NDS/TPI reduction factors.

Loading

#1 hip with 5-10-15 setback supports jack trusses, or rafters and joists, spanning between this truss and the end wall. Corner(s) framed with a hipJack supporting corner rafters and joists, or open-end jacks.

Use this design for common hip trusses @ 24.0" OC. Extend sloping TC of truss and jacks to hip rafter. Support extensions every 4.00 ft to flat TC. Spacing of supports originates from #1 hip. Attach 2x4 lateral bracing to flat TC @ 32" OC with 2-16d Box or Gun nails(0.135"x3.5",min.) and diagonally brace per DWG. BRCALHIP1014. Support hip rafter with cripples at 5-7-14 OC.

Purlins

In lieu of structural panels or rigid ceiling use purlins to brace all flat TC @ 32" OC, all BC @ 120" OC.

Wind

Member design based on both MWFRS and C&C.

Additional Notes

Building designer is responsible for conventional framing.

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Stone Truss
507 Jones Road
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AN ITW COMPANY
8351 Rovana Circle
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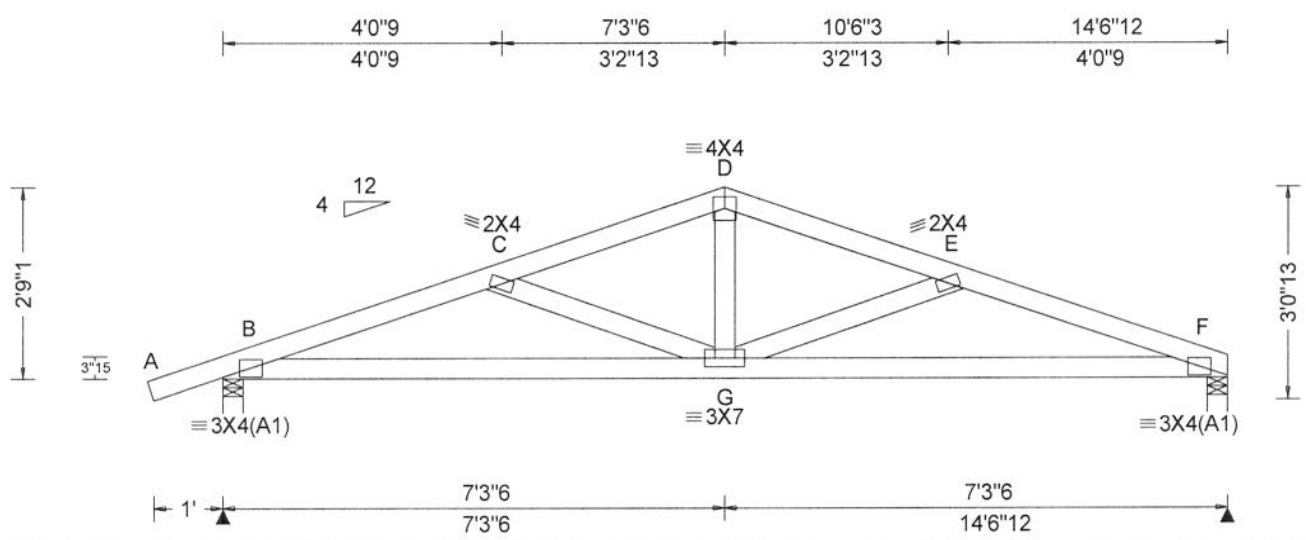
Job Number: T920 LONG BEACH REMODEL **Truss Label:** B1 COMN	Ply: 1 Qty: 1	SEQN: 270829 / T46 COMN FROM: SGH	Cust: R9282 JRef: 1VPf92820001 DrwNo: 090.16.1728.41957 BFR / GWH 03/30/2016



Loading Criteria (psf)

TCLL:	20.00
TCDL:	14.00
BCLL:	0.00
BCDL:	10.00
Des Ld:	44.00
NCBCLL:	10.00
Soffit:	2.00

Load Duration: 1.25
Spacing: 24.0 "

Wind Criteria
Wind Std: ASCE 7-10
Speed: 110 mph
Enclosure: Closed
Risk Category: II
EXP: C
Mean Height: 15.00 ft
TCDL: 8.4 psf
BCDL: 6.0 psf
MWFRS Parallel Dist: 0 to h/2
C&C Dist a: 3.00 ft
Loc. from endwall: Any
GCpi: 0.18
Wind Duration: 1.33

Snow Criteria (Pg,Pf in PSF)
Pg: NA Ct: NA CAT: NA
Pf: NA Ce: NA
Lu: NA Cs: NA
Snow Duration: NA

Code / Misc Criteria
Bldg Code: CBC 2013 Res
TPI Std: 2007
Rep Factors Used: No
FT/RT:20(0)/0(0)
Plate Type(s):
WAVE

Defl/CSI Criteria

PP Deflection in	loc	L/defl	L/#
VERT(LL): 0.031	G	999	240
VERT(TL): 0.105	G	999	180
HORZ(LL): 0.010	G	-	-
HORZ(TL): 0.035	G	-	-

Creep Factor: 2.0
Max TC CSI: 0.137
Max BC CSI: 0.452
Max Web CSI: 0.179

VIEW Ver: 15.01.01C.0611.00

▲Maximum Reactions (lbs)

Loc	R	/ U	/ Rw	/ Rh	/ RL	/ W
B	733	/ 196	/ 441	/ -	/ 46	/ 3.5
F	648	/ 152	/ 384	/ -	/ -	/ 3.5

Wind reactions based on C&C
B Min Brg Width Req = 1.5
F Min Brg Width Req = 1.5
Bearings B & F are a rigid surface.

Members not listed have forces less than 375#

Maximum Top Chord Forces Per Ply (lbs)

Chords	Tens.	Comp.	Chords	Tens.	Comp.
B - C	317	- 1382	D - E	234	- 1059
C - D	221	- 1058	E - F	326	- 1398

Maximum Bot Chord Forces Per Ply (lbs)

Chords	Tens.	Comp.	Chords	Tens.	Comp.
B - G	1279	- 259	G - F	1299	- 254

Maximum Web Forces Per Ply (lbs)

Webs	Tens.	Comp.
D - G	440	- 28

Lumber

Top chord 2x4 DF-L #1&Bet.(g)
Bot chord 2x4 DF-L #1&Bet.(g)
Webs 2x4 DF-L Standard(g)

Plating Notes

Connectors in green lumber (g) designed using NDS/TPI reduction factors.

Loading

Bottom chord checked for 10.00 psf non-concurrent live load.

Purlins

In lieu of rigid ceiling use purlins to brace BC @ 120" OC.

Wind

Member design based on both MWFRS and C&C.

Stone Truss
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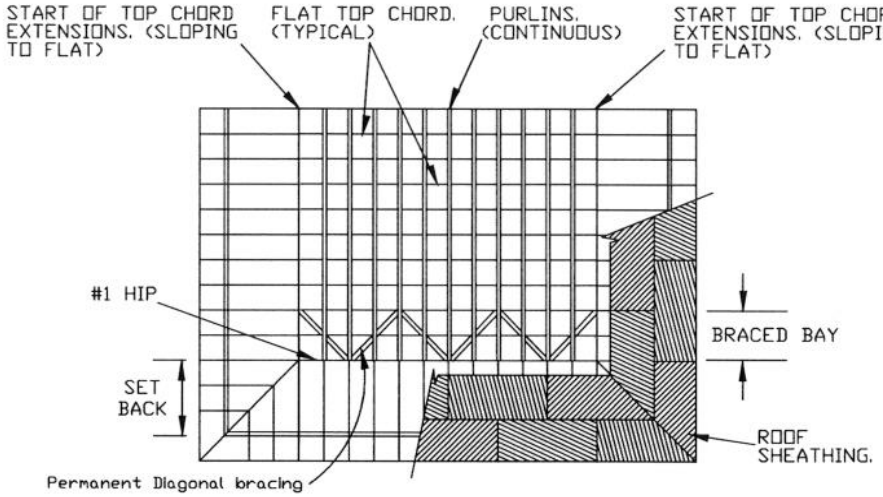
Sacramento, CA 95828

CALIFORNIA HIP PERMANENT BRACING DETAIL - END JACKS SUPPORTED 48" o/c

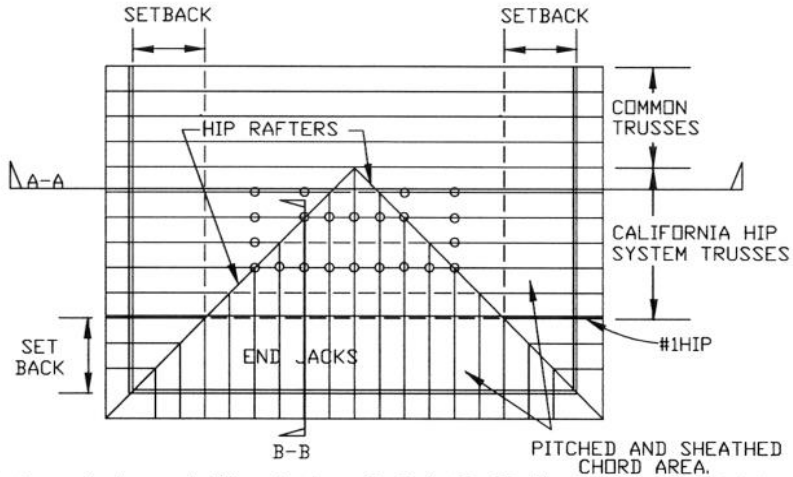
PERMANENT BRACING



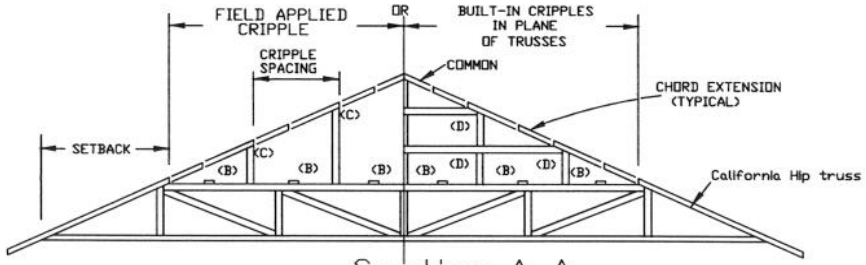
Permanent diagonals form braced bays. Repeat at all hip ends. Maximum interval equals 20 ft. Note: The first braced bay at the #1 hip can be excluded when the following conditions are met:
1) Continuous purlins are attached to the flat top chord of the #1 hip.
2) The end jacks are sheathed with properly attached structural panels.

Note: Conventional framing, including cripples and their connections, is not the responsibility of the truss designer, plate manufacturer, or truss fabricator. Persons erecting trusses are cautioned to seek advice of a local professional engineer regarding conventional framing. Trusses shall be designed for the appropriate tributary area.

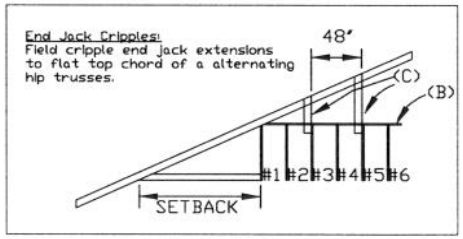
CRIPPLE SUPPORT LAYOUT



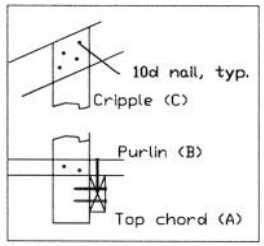
Wind: Maximum wind speed 120 mph, Exp. C, Cat. II, 30 ft. mean roof height and 5 psf min. dead load. Connect cripples to rafter extensions with (6)10d nails (0.128x3"), and to top chord of hip truss and purlin with (3) 10d nails. -OR- Butt cripples to jack rafter and hip truss top chord, and provide connection for 360# uplift each end (ITWBCG HT2.5 clip with 8d nails (0.131"x1.5") or equivalent.)
(A) Hip truss top chord. (B) 2X4 continuous purlin, 24" o/c typ.
(C) CRIPPLES: o - Cripple Location. (4' o.c. cripple spacing shown)
Cripples support extended top chords of end jacks, hip jacks, and hips.
Material: 2X4 SPF, HF, DF-L, or So.Pine Standard/Stud/#3 min. grade.
Max. cripple length = 6'3". Max. 40 psf Snow Load + 14 psf Dead Load.
(D) Cripples and horizontal false top chords may be built into truss.



Section A-A



Section B-B



Cripple Connections

ALPINE
AN ITW COMPANY

13389 Lakefront Drive
Earth City, MO 63045

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ALPINE: www.alpineitw.com; TPI: www.tpinst.org; SBCA: www.sbcindustry.org; ICC: www.iccsafe.org

REGISTERED PROFESSIONAL ENGINEER
GAROLD W. HEA
No. C 58005
03/31/2016
CIVIL
STATE OF CALIFORNIA

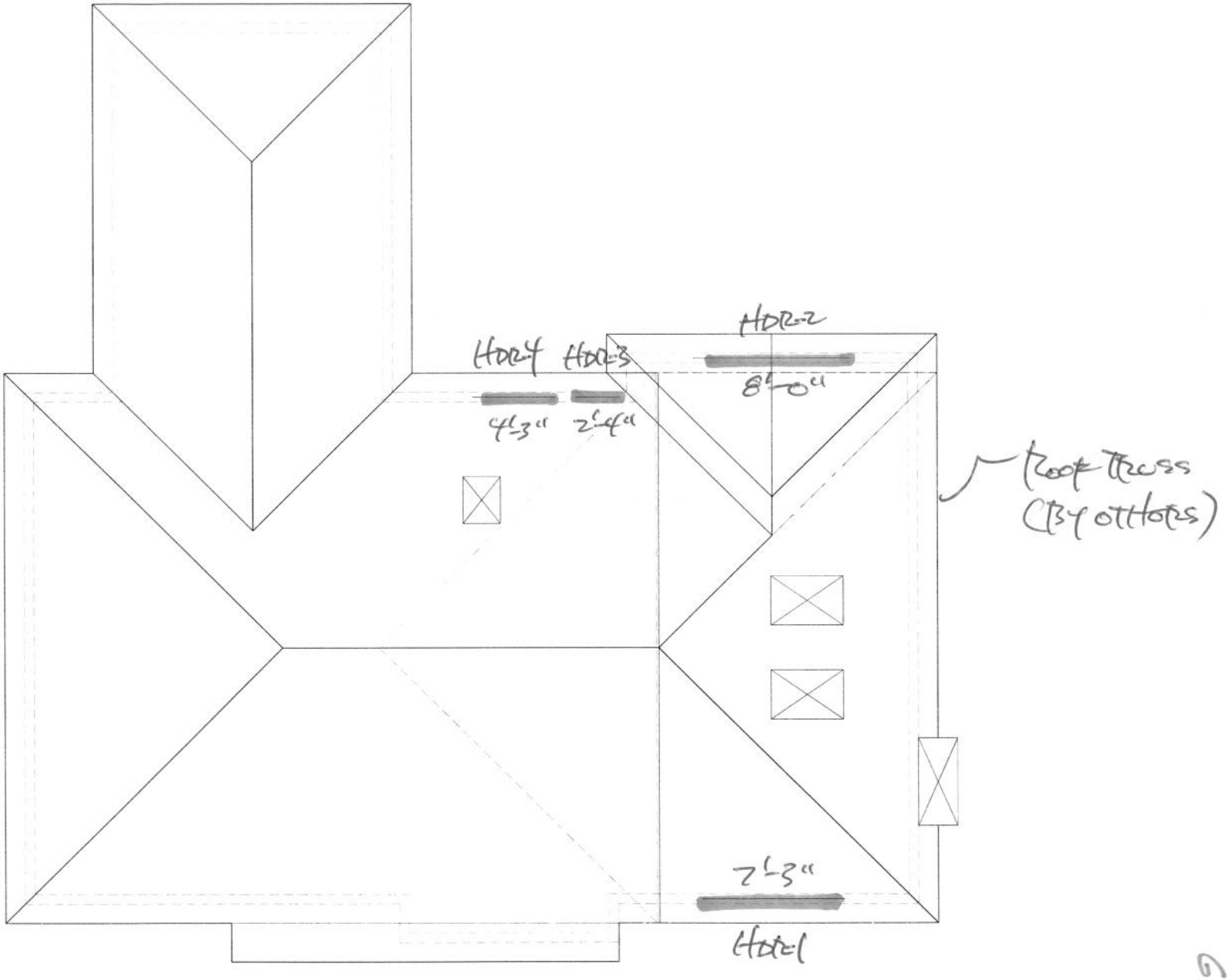
See truss drawings for specific design information.

Design Crit.: NDS-2012

Spacing: 24" oc, typ.

REF	CALIF. BRACE
DATE	10/01/14
DRWG	BRCALHIP1014

6/18



ROOF FRAMING

G.2.1

ROOF BEAMS

HDR-1* & HDR-2

$w = 556$ PLF

↑ 8'-0" ↑

* HDR-1 HAS SIMILAR LOADING AS HDR-2

$L_r = L_o R_1 R_2$

$R_1 = 1.0$ ($T_A \leq 200$ SF)

$R_2 = 1.0$ ($F \leq 4$)

$L_r = L_o = 20$ PSF

$w = (18\text{ PSF} + 20\text{ PSF})\,14' + 18\text{ PSF}\left(\frac{16}{12}\right)' = 556$ PLF

$V = \frac{wl}{2} = \frac{556(8)}{2} = 2220^{\#}$

$M = \frac{wl^2}{8} = \frac{556(8^2)}{8} = 4450^{1-\#}$

DEFLECTION

$\Delta_L \leq \frac{L}{240} = \frac{8\times 12}{240} = 0.40"$

$I_{REQ} = \frac{5wL^4}{384E\Delta_L} = \frac{5(20\times 14)8^4 12^3}{384(1.7\times 10^6)0.40} = 38\text{ in}^4$

$\Delta_{D+L} \leq \frac{L}{180} = \frac{8\times 12}{180} = 0.53$

$I_{REQ} = \frac{5(556)8^4 12^3}{384(1.7\times 10^6)0.53} = 57\text{ in}^4$ CONTROLS

TRY: 4X10 DF-L #1

$I = 230.8\text{ in}^4$

$S = 49.91\text{ in}^3$

$A = 32.38\text{ in}^2$

$C_L = 1.0 \Rightarrow \frac{d}{b} = \frac{10}{4} = 2.25$ PER NDS 4.4.1

CHECK BENDING

$f_b = \frac{M}{S} = \frac{4450 \text{ K-ft}}{49.91} = 1070 \text{ PSI}$

$F'_b = F_b C_D C_F = 1000 \text{ PSI} (1.25) 1.20 = 1500 \text{ PSI}$

$f_b = 1070 \text{ PSI} < F'_b = 1500 \text{ PSI}$ OK

CHECK SHEAR

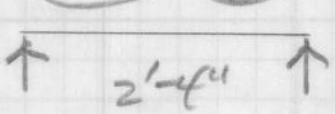
$f_v = \frac{3V}{2A} = \frac{3(2220)}{2(32.38)} = 103 \text{ PSI}$

$F'_v = F_v C_D = 180 (1.25) = 225 \text{ PSI}$

$f_v = 103 \text{ PSI} < F'_v = 225 \text{ PSI}$ OK

USE 4x10 DF-L #1 (HDR1 & HDR2)

Hdr 3



$L_r = L_o t_1 t_2$

$t_1 = 1.0$ ($C_T A < 200$ SF)

$t_2 = 1.0$ ($F \leq 4$)

$L_r = L_o = 20$ PSF

$w = (18\,PSF + 20(\tfrac{14}{12})')\,14' + 18(\tfrac{14}{12})' = 556$ PLF

$V = \frac{wl}{2} = \frac{556(2.33)}{2} = 648^{\#}$

$M = \frac{wl^2}{8} = \frac{556(2.33^2)}{8} = 378^{1-\#}$

DEFLECTION

$\Delta_L \leq \frac{L}{240} = \frac{2.33 \times 12}{240} = 0.12"$

$I_{REQ} = \frac{5wL^4}{384EI} = \frac{5(20\times14)2.33^4(12^3)}{384(1.7\times10^6)0.12} = 0.91\,in^4$

$\Delta_{DL} \leq \frac{L}{180} = \frac{2.33\times12}{180} = 0.16"$

$I_{REQ} = \frac{5wL^4}{384EI} = \frac{5(556)2.33^4(12^3)}{384(1.7\times10^6)0.16} = 1.36\,in^4$ CONTROLS

TRY 4x4 DF-L #1

$I = 12.51\,in^4$

$S = 7.15\,in^3$

$A = 12.25\,in^2$

$C_L = 1.0 \Rightarrow \frac{d}{6} = \frac{4}{4} = 1.0$ PER NDS 4.4.1

CHECK BENDING

$f_b = \frac{M}{S} = \frac{378 \text{ K-ft}}{7.15} = 634 \text{ psi}$

$F'_b = F_b C_D C_F = 1000 (1.25)(1.50) = 1875 \text{ psi}$

$f_b = 643 \text{ psi} < F'_b = 1875 \text{ psi}$ OK

CHECK SHEAR

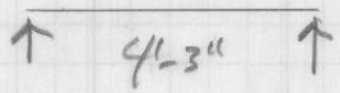
$f_v = \frac{3V}{2A} = \frac{3(64\text{k})}{2(12.25)} = 79.3 \text{ psi}$

$F'_v = F_v C_D = 180 (1.25) = 225 \text{ psi}$

$f_v = 79.3 \text{ psi} < F'_v = 225 \text{ psi}$ OK

USE 4x4 DF-L #1 (HRD3)

HDR 4



$L_r = L_o R_1 R_2$

$R_1 = 1.0$ ($T_A < 200$ SF)

$R_2 = 1.0$ ($F < 4$)

$L_r = L_o = 20$ PSF

$w = (18\text{ PSF} + 20\text{ PSF})14' + 10\text{ PSF}\left(\frac{16}{12}\right)' = 556$ PLF

$V = \frac{wl}{2} = \frac{556(4.25)}{2} = 1180^{\#}$

$M = \frac{wl^2}{8} = \frac{556(4.25^2)}{8} = 1260^{1-\#}$

DEFLECTION

$\Delta_L \leq \frac{L}{240} = \frac{4.25 \times 12}{240} = 0.21"$

$I_{REQ} = \frac{5wL^4}{384E\Delta_L} = \frac{5(20)14)\,4.25^4(12^3)}{384((1.7\times10^6)0.21} = 5.76\text{ in}^4$

$\Delta_{DL} \leq \frac{L}{180} = \frac{4.25 \times 12}{180} = 0.28"$

$I_{REQ} = \frac{5wL^4}{384E\Delta_L} = \frac{5(556)4.25^4(12^3)}{384(1.7\times10^6)0.28} = 8.57\text{ in}^4$ CONTROLS

TRY 4x6 DF-L #1

$I = 48.53\text{ in}^4$

$S = 17.65\text{ in}^3$

$A = 19.25\text{ in}^2$

$C_L = 1.0 \Rightarrow \frac{\ell}{d} = \frac{6}{4} = 1.5$ PER NDS 4.4.1

CHECK BENDING

$$f_b = \frac{M}{S} = \frac{(260 \times 12)}{17.65} = 857 \text{ psi}$$

$$F'_b = F_b C_D C_f = 1000(1.25)(.3 = 1625 \text{ psi}$$

$f_b = 857 \text{ psi} < F'_b = 1625 \text{ psi}$ OK

CHECK SHEAR

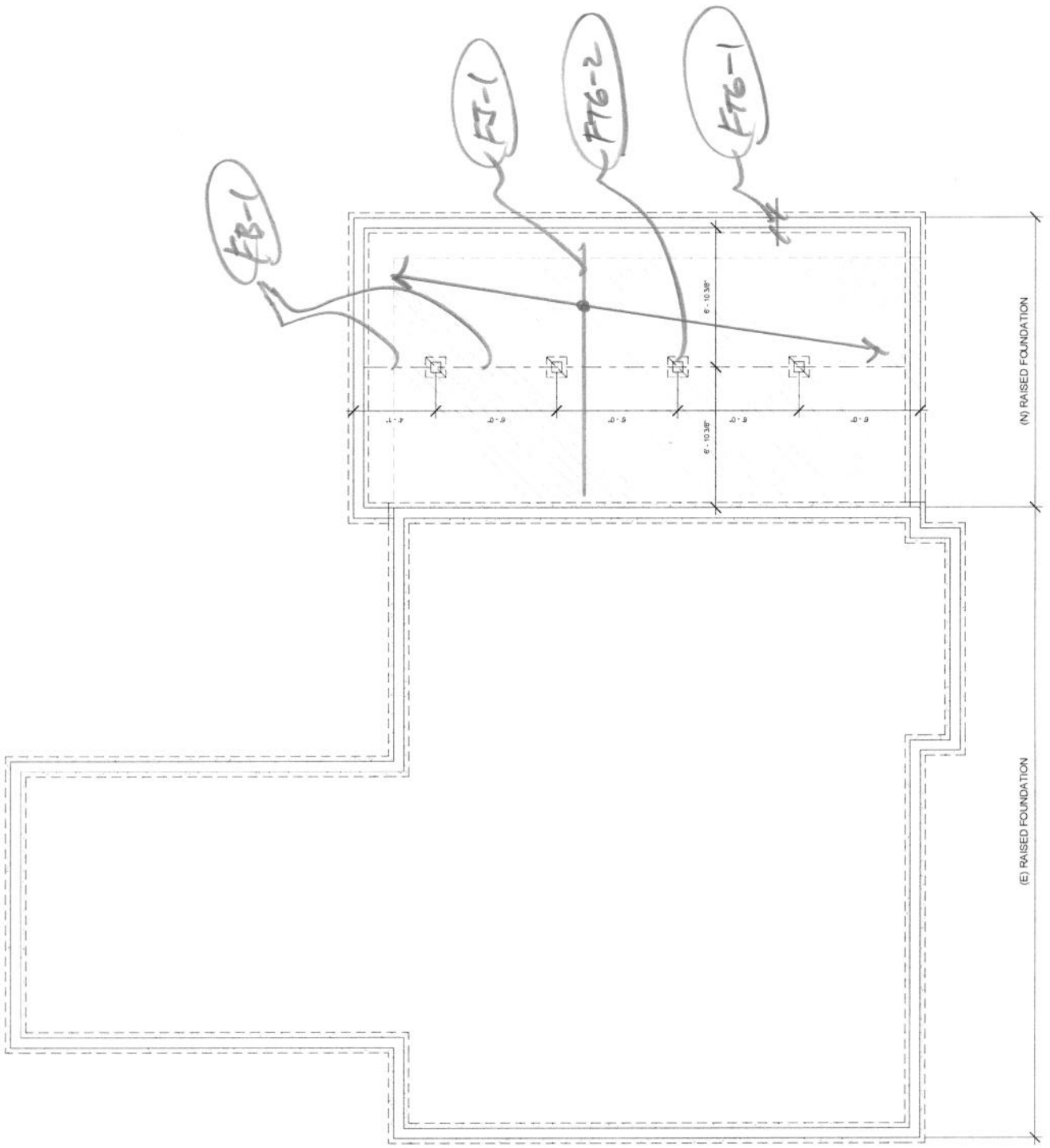
$$f_v = \frac{3V}{2A} = \frac{3(1180)}{2(19.25)} = 91.9 \text{ psi}$$

$$F'_v = F_v C_D = 180(1.25) = 225 \text{ psi}$$

$f_v = 91.9 \text{ psi} < F'_v = 225 \text{ psi}$ OK

USE 4x6 DF-L #1 (HDR)

G3.1



FOUNDATION & FLOOR FRAMING KEY PLAN

FLOOR FRAMING

$A_T = 7' \times (\frac{16}{12})' = 10 SF$

$K_{LL} A_T = 20 SF < 400 SF$

$\Rightarrow$ NO REDUCTION ALLOWED

FJ-1

$w = 69.3 PLF$

↑ 7'-0" ↑

$w = (12 PSF + 40 PSF)(\frac{16}{12}) = 69.3 PLF$

$V = \frac{wl}{2} = \frac{69.3(7)}{2} = 243\#$

$M = \frac{wl^2}{8} = \frac{69.3(7^2)}{8} = 425'-\#$

DEFLECTION

$\Delta_L \leq \frac{l}{360} = \frac{7 \times 12}{360} = 0.23"$

$I_{REQ} = \frac{5wL^4}{384 E \Delta_L} = \frac{5(40 \times \frac{16}{12}) 7^4 12^3}{384 (1.6 \times 10^6) 0.23} = 7.83 in^4$ CONTROLS

$\Delta_{DTL} \leq \frac{L}{240} = \frac{7 \times 12}{240} = 0.35"$

$I_{REQ} = \frac{5wL^4}{384 E \Delta_{DTL}} = \frac{5(69.3) 7^4 12^3}{384 (1.6 \times 10^6) 0.35} = 6.69 in^4$

TRY 2x6 DF-L #2

$I = 20.8 in^4$

$S = 7.56 in^3$

$A = 8.25 in^2$

CHECK BENDING

$f_b = \frac{M}{S} = \frac{4.5 \times 12}{7.56} = 675 \text{ PSI}$

$F'_b = F_b C_D C_F C_R = 900 (1.0) 1.3 (1.15) = 1350 \text{ PSI}$

$f_b = 675 \text{ PSI} < F'_b = 1350 \text{ PSI}$ OK

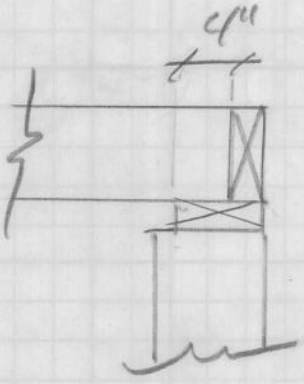
CHECK SHEAR

$f_v = \frac{3V}{2A} = \frac{3(243)}{2(8.25)} = 44.2 \text{ PSI}$

$F'_v = F_v C_D = 180 (1.0) = 180 \text{ PSI}$

$f_v = 44.2 \text{ PSI} < F'_v = 180 \text{ PSI}$ OK

CHECK BEARING



$C_b = \frac{l_b + \frac{3}{8}}{l_b} = \frac{4 + \frac{3}{8}}{4} = 1.09$

$A = l_b b = 4(2) = 8 \text{ in}^2$

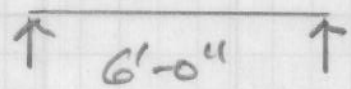
$f_{c\perp} = \frac{P}{A} = \frac{243}{8} = 30.4 \text{ PSI}$

$F'_{c\perp} = F_{c\perp} C_b = 625 (1.09) = 681 \text{ PSI}$

$f_{c\perp} = 30.4 \text{ PSI} < F'_{c\perp} = 681 \text{ PSI}$ OK

USE 2x6 DF-L #2 (FJ-1)

FB-1



$T_A = 6' \times 14' = 84 SF$

$K_{LL} T_A = 84 \times 2 = 168 SF < 400 SF$

$\Rightarrow$ NO REDUCTION ALLOWED

$w = (15 PSF + 40 PSF) 14' = 770 PLF$

$V = \frac{wl}{2} = \frac{770(6)}{2} = 2310^{\#}$

$M = \frac{wl^2}{8} = \frac{770(6^2)}{8} = 3470^{1-\#}$

DEFLECTION

$\Delta_L \leq \frac{l}{360} = \frac{6 \times 12}{360} = 0.20"$

$I_{REQ} = \frac{5wL^4}{384 E \Delta_L} = \frac{5(40 \times 14) 6^4 12^3}{384 (1.7 \times 10^6) 0.20} = 48.0 IN^4$ CONTROLS

$\Delta_{DL} \leq \frac{l}{240} = \frac{6 \times 12}{240} = 0.30"$

$I_{REQ} = \frac{5wL^4}{384 E \Delta_{DL}} = \frac{5(770) 6^4 12^3}{384 (1.7 \times 10^6) 0.30} = 44 IN^4$

TRY 4X10 DF-L #1

$I = 230.8 IN^4$

$S = 49.91 IN^3$

$A = 32.38 IN^2$

CHECK BENDING

$$f_b = \frac{M}{S} = \frac{3470 \times 12}{49.91} = 834 \text{ psi}$$

$$F'_b = F_b C_D C_P = 1000 (1.0) 1.2 = 1200 \text{ psi}$$

$$f_b = 834 \text{ psi} < F'_b = 1200 \text{ psi} \quad \underline{\text{OK}}$$

CHECK SHEAR

$$f_v = \frac{3V}{2A} = \frac{3(2310)}{2(32.38)} = 107 \text{ psi}$$

$$F'_v = F_v C_D = 180 (1.0) = 180 \text{ psi}$$

$$f_v = 107 \text{ psi} < F'_v = 180 \text{ psi} \quad \underline{\text{OK}}$$

USE 4x10 DF-L #1 (FB-1)

FOUNDATIONS

WALL FOOTINGS (FTG-1)

LOADS

(15 PSF + 20 PSF) 7' = 245 PLF
18 PSF × 8' = 144 PLF
(12 PSF + 40 PSF) 3.5' = 182 PLF
150 PCF (1' × 0.5' + 2' + 0.5') = 225 PLF
796 PLF

MINIMUM FTG. WIDTH = $\frac{796 \text{ PLF}}{1500 \text{ PSF}} = 0.53'$

USE 12" WIDE FTG.

MINIMUM STEEL. 24" × 6" × 0.002 = 0.26 IN²
USE #5 BARS (0.31 IN²)

USE 12" WIDE BY 6" THICK WALL FTG.
W/ 1-#5 CONT. TOP/BOT.

PIER FOOTINGS (FTG-2)

LOADS (15 PSF + 40 PSF) × 6' × 7' = 2310#

$\frac{2310\#}{1500 \text{ PSF}} = 1.54 \text{ SF}$

USE 18" SQ. FTGS.

ASCE 7-10 Equivalent Lateral Force Procedure (Section 12.8)

V = CsW (lbs) Seismic Base Shear.

site class =	D	
Ss =	1.577	G
S1 =	0.584	G
SDS =	1.051	G
SD1 =	0.584	G
R =	6.5	
I =	1	
Ta =	$C_t h_n^x$	
C_t =	0.02	
h_n =	10.5	ft
x =	0.75	
T = Ta =	0.117	sec

Calculate Cs:	
Cs =	0.162
Cs max =	0.770
Cs min =	0.046

Solutions	
Cs =	0.162

USE $C_s = 0.2$

Seismic

Building Weights

Roof $15\ psf\left[(45.5' \times 26.25') + (19' \times 14.25') + (11' \times 1.5') + (11' \times 15')\right]$
$= 24700^{\#}$

Int. walls $8\ psf\left[(62.25' \times 4') + (83.25' \times 4')\right] = 4650^{\#}$

Ext. walls $18\ psf\left(2 \times 45.5' + 2 \times 47.25' + 2 \times 2'\right) \times 4' = 13600^{\#}$

Bldg. wt $= 43000^{\#} = W$

Diaphragm

$$F_{px} = \frac{\sum F_i}{\sum w_i} w_{px} \Rightarrow \text{Building is 1-story}$$

$$F_{px} = 0.2\, w_{px}$$

Limits

$0.4 S_{DS} I\, w_{px} = 0.4(1.05)1(w_{px}) = 0.420\, w_{px} > F_{px}$ OK

$0.2 S_{DS} I\, w_{px} = 0.2(1.05)1(w_{px}) = 0.210\, w_{px} > F_{px}$

$$F_{px} = 0.210\, w_{px}$$

DIAPHRAGM DESIGN

$$F_{px} = 0.2 w_{px} = (K_D)\ \frac{0.2 \times 1.3}{1.4}(43000) = 8390^{\#}$$

$$F_{p\,roof} = \frac{F_{px}}{\text{ROOF AREA}} = \frac{8390^{\#}}{1500\ SF} = 5.60\ PSF$$

N-S DIR.

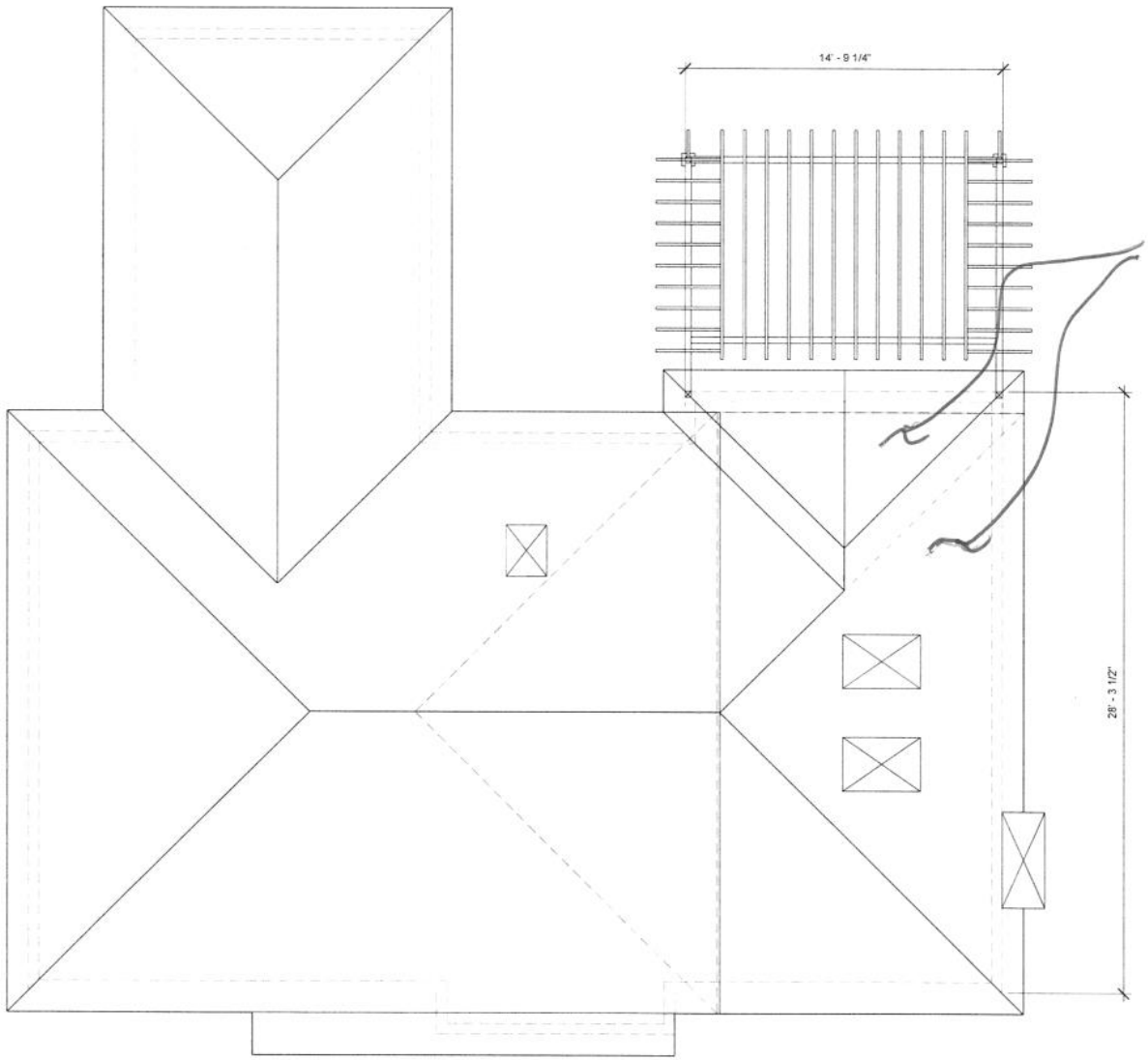
$$v_{N.S} = \frac{5.60\ PSF\ (1500\ SF)}{(2 \times 47.25)} = 88.9\ PLF$$

USE $\frac{1}{2}$" CDX w/ 10d @ 6", 6", 12" BLOCKED w/ 2x

$v_n = 290\ PLF > v_{N.S.}$ OK

E-W DIR.

$$v_{E.W} = \frac{5.60\ PSF\ (1500\ SF)}{(2 \times 45.5)} = 92.3\ PLF$$ OK

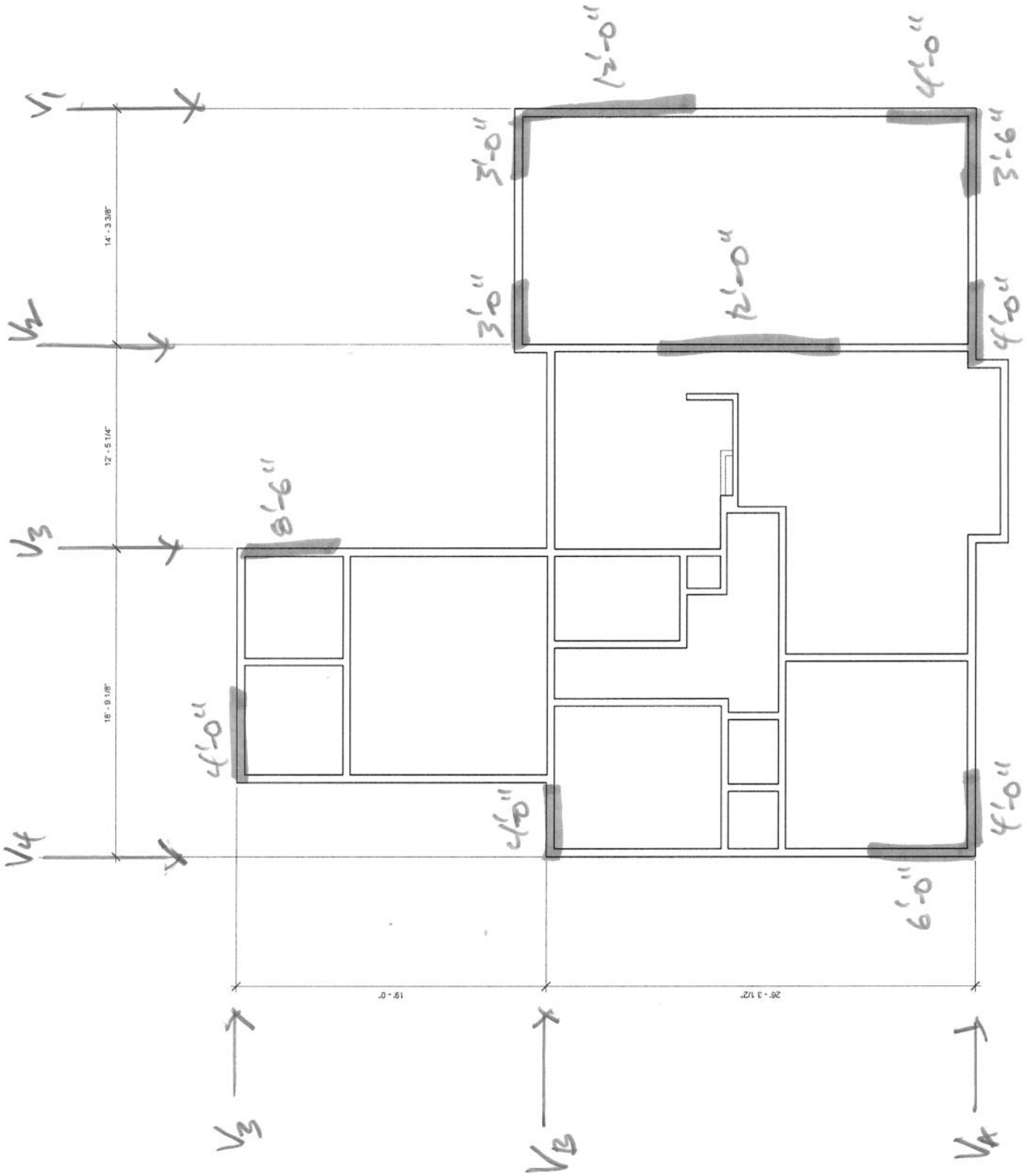


USE $\frac{1}{2}$" CDX
W/ 10d @ 6", 6", 12"
BLOCKED

DIAPHRAGM PLAN

L2.2

L3.1



Shoreline Key Plan

SHEARWALL DESIGN

N-S DIRECTION

$v = 5.60$ PSF

@ GRIDLINE 1, $V_1 = 5.60 \text{ PSF} \times 28.25' \times \frac{15.25'}{2} = 1210^{\#}$

$v_1 = \frac{1210^{\#}}{(12'+4')} = 76$ PLF

USE SHEARWALL ① PER SCHEDULE ($v_a = 280$ PLF) OK

@ GRIDLINE 2, $V_2 = 5.60 \text{ PSF} \times 28.25' \times \left(\frac{15.25'}{2} + \frac{12'}{2}\right) = 2160^{\#}$

$v_2 = \frac{2160}{12'} = 180$ PLF

USE SHEARWALL ① PER SCHEDULE ($v_a = 280$ PLF)

@ GRIDLINE 3, $V_3 = 5.60 \text{ PSF} \times 47.25' \times \left(\frac{12'}{2} + \frac{8.75'}{2}\right)$ OK

$= 4070^{\#}$

$v_3 = \frac{4070^{\#}}{8.5'} = 478$ PLF

USE SHEARWALL ② PER SCHEDULE ($v_a = 510$ PLF) OK

@ GRIDLINE 4, $V_4 = 5.60 \text{ PLF} \times 26.25' \times \frac{18.75'}{2} = 1380^{\#}$

$v_3 = \frac{1380^{\#}}{6'} = 230$ PLF

USE SHEARWALL ① PER SCHEDULE ($v_a = 280$ PLF) OK

E-W DIRECTION

@ GRIDLINE A, $V_A = 5.60\,PSF \times 45.5' \times \frac{28.25'}{2} = 3600^{\#}$

$$v_a = \frac{3600^{\#}}{11.5} = 313\ PLF$$

USE SHEARWALL ② PER SCHEDULE ($v_a = 510\ PLF$) OK

@ GRIDLINE B, $V_B = 5.60\,PSF \times 41' \times \left(\frac{28.25'}{2} + \frac{17'}{2}\right)$

$$= 5190^{\#}$$

$$v_B = \frac{5190^{\#}}{10'} = 519\ PLF$$

USE SHEARWALL ③ PER SCHEDULE ($v_a = 665\ PLF$) OK

@ GRIDLINE C, $V_C = 5.60\,PSF \times 14.25' \times \frac{17'}{2} = 678^{\#}$

$$v_c = \frac{678^{\#}}{41} = 170\ PLF$$

USE SHEARWALL ① PER SCHEDULE ($v_a = 280\ PLF$) OK

SHEARWALL OTM

USE SEISMIC LOAD COMB.

$(0.6 - 0.14 S_{DS})DL + 0.7EV$

$0.6 - 0.14(1.051) = 0.467$

N-S WALLS

GRIDLINE 1

$V = 76\,PLF \times 12' = 912^{\#}$

$UPLIFT = \left[912^{\#} \times 8' - 0.467\left(15\,PSF \times 7.38' \times \frac{12^2}{4} + 18\,PSF \times 8' \times \frac{12^2}{2}\right)\right] \div 12$

(4 — HIP CONDITION)

$= 49.4^{\#}$

$V = 76\,PLF \times 4' = 304^{\#}$

$UPLIFT = \left[304^{\#} \times 8' - 0.467\left(15\,PSF \times 4' \times \frac{4^2}{2} + 18\,PSF \times 8' \times \frac{4^2}{2}\right)\right] \div 4$

$= 418^{\#}$

USE SIMPSON HDU2 HOLDOWN

$T_a = 3075 > T = 418^{\#}$ OK

GRIDLINE 2

$V = 2(60^{\#})$

$UPLIFT = \left[2(60^{\#} \times 8' - 0.467\left(15\,PSF \times 7.38' \times \frac{12^2}{2} + 18\,PSF \times 8' \times \frac{12^2}{2}\right)\right] \div 12$

$= 126^{\#}$

USE SIMPSON HDU2 HOLDOWN OK

GRIDLINE 3

$V = 4070^{\#}$

$UPLIFT = \left[4070^{\#} \times 8' - 0.467\left(15PSF \times 7' \times \frac{8.5^2}{4} + 18PSF \times 8' \times \frac{8.5^2}{2}\right)\right] \div 8.5$

(4 = HIP COND)

$= 3440^{\#}$

USE SIMPSON HDU4 HOLDOWN OK

$T_a = 4065^{\#} > T = 3440^{\#}$

GRIDLINE 4

$V = 1380^{\#}$

$UPLIFT = \left[1380^{\#} \times 8' - 0.467\left(15PSF \times 6' \times \frac{6^2}{4} + 18PSF \times 8' \times \frac{6^2}{2}\right)\right] \div 6$

(4 = HIP COND)

$= 1580^{\#}$

USE SIMPSON HDU2 HOLDOWN OK

E-W WALLS →

GRIDLINE A

$V = 313\ PLF \times 3.5' = 1100^{\#}$

$$UPLIFT = \left[1100^{\#} \times 8' - 0.467\left(15\ PSF \times 3.5 \times \frac{3.5^2}{4} + 18\ PSF \times 8' \times \frac{3.5^2}{2}\right)\right] \div 3.5$$

(4) ← HIP ROOF CONDITION ADJ.

$= 2380^{\#}$

UPLIFT FORCES FOR OTHER TWO WALLS ON GRIDLINE A ARE SIMILAR

USE SIMPSON HDU2 HOLDOWN OK

GRIDLINE B

$V = 519\ PLF \times 3' = 1560^{\#}$

$$UPLIFT = \left[1560^{\#} \times 8' - 0.467\left(15\ PSF \times 3 \times \frac{3^2}{4} + 18\ PSF \times 8' \times \frac{3^2}{2}\right)\right] \div 3$$

(4) HIP ROOF CONDITION ADJ.

$= 4040^{\#}$

UPLIFT FORCES FOR OTHER TWO WALLS ON GRIDLINE B ARE SIMILAR

USE SIMPSON HDU4 HOLDOWN

$T_a = 4565^{\#} > T = 4040^{\#}$ OK

GRIDLINE C

$V = 678^{\#}$

$$\text{UPLIFT} = \left[678^{\#} \times 8' - 0.467\left(15\text{PSF} \times 4' \times \frac{4^2}{4} + 18\text{PSF} \times 8' \times \frac{4^2}{2}\right)\right] \div 4$$

$$= 1190^{\#}$$

USE SIMPSON HDU2 HOLDOWN OK