PARAMETERS DESIGN CBC 2022

WIND DESIGN

1. BASIC WIND SPEED (3-SECOND GUST), MILES PER HOUR = 95
2. WIND IMPORTANCE FACTOR, I=1.0 AND OCCUPANCY CATEGORY = II
3. WIND EXPOSURE CATEGORY: C
4. THE APPLICABLE INTERNAL PRESSURE COEFFICIENT =0.18

SEISMIC DESIGN

1. SEISMIC IMPORTANCE FACTOR, I=1.0 , AND OCCUPANCY CATEGORY = II
2. MAPPED SPECTRA RESPONSE ACCELERATIONS, Ss=1.882g AND S1=0.674g
3. SITE CLASS = D
4. SPECTRA RESPONSE COEFFICIENTS, SDS=1.505g
5. SEISMIC DESIGN CATEGORY = D
6. LATERAL RESISTANCE SYSTEM =
   LIGHT FRAME WOOD WALL SHEATHED WITH WOOD STRUCTURAL PANELS
7. BASE SHEAR =
   MAIN BUILDING = 20600(ASD)
   GARAGE = 79000(ASD),
8. TOTAL BUILDING WEIGHT
   MAIN BUILDING = 89000(LBS)
   GARAGE = 33900(LBS),
9. SEISMIC RESPONSE COEFFICIENT(S), Cs=0.2316 (ASD),
10. RESPONSE MODIFICATION FACTOR(s),
    LIGHT FRAME WOOD WALLS, R =6.5,
11. ANALYSIS PROCEDURE USED : EQUIVALENT LATERAL FORCE PROCEDURE
12. REDUNDANCY FACTOR USED: 1.3
13. ASSUMING LOAD BEARING VALUE OF SOILS=1500 PSF.

BASIS OF DESIGN

·FLOOR DEAD LOAD	= 20PSF	·FLOOR LIVE LOAD	= 40 PSF
·ROOF DEAD LOAD	= 20PSF	·ROOF LIVE LOAD	= 20 PSF
·EXT. WALL DEAD LOAD	= 16PSF	·INTERNAL WALL LIVE LOAD	= 10 PSF

NAILING SCHEDULE

CONNECTIONS	NAILING
POST TO PIER PAD, TOE NAIL	3-16d OR 4-8d
GIRDER TO POST, TOE NAIL	3-16d OR 4-8d
JOIST TO SILL OR GIRDER, TOE NAIL	3-8d
BRIDGING TO JOIST, TOE NAIL EACH END	2-8d
JOISTS TO BLOCKING, END NAIL	16d TOP AND BOTT. OF EACH JOIST
RIM JOIST TO JOISTS, END NAIL	16d TOP AND BOTT. OF EACH JOIST
RIM JOIST TO SILL, TOE NAIL	16d @ 16" O.C.
FLOOR JOIST LAP @ BEARING, FACE NAIL	2-16d
1"x6" OR NARROWER SUB FLOOR SHEATHING TO EACH JOIST, FACE NAIL	2-8d
WIDER THAN 1"x6" SUB FLOOR SHEATHING TO EACH JOIST, FACE NAIL	3-8d
2" SUB FLOOR TO JOIST OR GIRDER, BLIND AND FACE NAIL	2-16d
SOLE PLATE TO JOIST OR BLOCKING NAIL	16d @ 16" O.C.
TOP PLATE TO SOLE PLATE TO STUD, END NAIL	2-16d
STUD TO SOLE PLATE	2-16d END NAIL OR 4-8d TOE NAIL
DOUBLE STUDS, FACE NAIL	16d @ 24" O.C.
DOUBLE TOP PLATES, FACE NAIL	16d @ 16" O.C.
TOP PLATES, LAPS AND INTERSECTIONS, FACE NAIL	2-16d
CONTINOUS HEADER, TWO PIECES SET ON EDGE	16d @ 16" O.C. ALONG EACH EDGE
CEILING JOISTS TO PLATE, TOE NAIL	3-8d
CONTINOUS HEADER TO STUD, TOE NAIL	4-8d
CEILING JOISTS, LAP OVER PARTITIONS, FACE NAIL	3-16d
CEILING JOISTS TO PARRALEL RAFTERS, FACE NAIL	3-16d
RAFTER TO RIDGE	3-8d
RAFTER TIES, 2" LUMBER, FACE NAIL	3-16d
RAFTER TIES, 1" LUMBER, FACE NAIL	5-8d
RAFTER TO PLATE NAIL	3-8d
1"x4" MIN. BRACE TO EACH STUD AND PLATE, FACE NAIL	2-8d
1"x8" OR NARROWER SHEATHING TO EACH BEARING, FACE NAIL	2-8d
WIDER THAN 1"x8" SHEATHING TO EACH BEARING, FACE NAIL	3-8d
BUILD-UP CONNER STUDS	16d @ 24" O.C.
* COMMON OR GALVANIZED BOX NAILS	

REINFORCING:

ALL REINFORCING SHALL COMPLY WITH THE REQUIREMENTS OF THE LATEST EDITION OF ACI 318, CRSI SPECIFICATIONS AND HANDBOOK, AND THE STEEL REINFORCING DETAILING MANUAL. ALL REINFORCING STEEL SHALL CONFORM TO ASTM A615 (Fy = 60 KSI) DEFORMED BARS FOR ALL BARS UNLESS NOTED OTHERWISE. ALL GRADE 60 REINFORCING TO BE WELDED SHALL BE ASTM A706. WELDED WIRE FABRIC SHALL CONFORM TO ASTM A185 WITH THE WIRE CONFORMING TO ASTM A82. REINFORCING BARS SHALL NOT BE TACK WELDED. REINFORCING BAR SPACING AS SHOWN ARE MAXIMUM ON CENTER SPACING. CLEAR CONCRETE COVERAGES SHALL BE AS FOLLOWS:

CAST AGAINST AND PERMANENTLY EXPOSED TO EARTH ---------- 3" EXPOSED TO EARTH OR WEATHER:
- #6 OR LARGER ---------- 2"
- #5 AND SMALLER ---------- 1 1/2"

ALL OTHER PER LATEST EDITION OF ACI 318.

LAP SPLICES IN CONCRETE: (BARS) LAP SPLICES SHALL BE CLASS "B" TENSION LAP SPLICES AS DESCRIBED IN THE LATEST EDITION OF ACI 318 UNLESS OTHERWISE NOTED. LAP SPLICES IN CONCRETE COLUMNS SHALL BE STANDARD COMPRESSION LAP SPLICES. SPLICES SHALL BE STAGGERED A MINIMUM OF ONE LAP LENGTH.

(WELDED WIRE FABRIC) WELDED WIRE FABRIC SHALL BE LAPPED SUCH THAT THE OVERLAP, MEASURED BETWEEN OUTERMOST CROSS WIRES OF EACH FABRIC SHEET, IS GREATER THAN THE SPACING OF CROSS WIRES PLUS 2 INCHES. PLACE ALL WELDED WIRE FABRIC ON GALVANIZED CHAIRS TO ACHIEVE PROPER CLEARANCES AND CONCRETE COVER.

ALL SPLICE LOCATIONS ARE SUBJECT TO APPROVAL BY THE STRUCTURAL ENGINEER. BENT CORNER BARS SHALL BE PLACED AT ALL CORNERS AND INTERSECTIONS AND SHALL MATCH AND LAP WITH HORIZONTAL BARS AS INDICATED IN THE TYPICAL DETAILS. ALL BENT BARS SHALL BE COLD BENT. ALL VERTICAL REINFORCING SHALL BE DOWELED INTO FOOTINGS WITH STANDARD 90 DEGREE HOOKS UNLESS NOTED OTHERWISE. CONCRETE COLUMN DOWEL EMBEDMENT SHALL BE A STANDARD COMPRESSION DOWEL WITH EMBEDMENT LENGTH ACCORDING TO THE LATEST EDITION OF THE ACI 318.

ALL REINFORCING AND EMBEDDED ITEMS SUCH AS PLATES, BOLTS, ETC. SHALL BE IN PLACE AND PROPERLY SECURED PRIOR TO PLACING GROUT OR CONCRETE. IN NO CASE SHALL ITEMS BE "WET SET" OR STABBED INTO UNSET GROUT OR CONCRETE. REINFORCING SHALL BE SECURED IN PLACE SO AS TO AVOID MOVEMENT DURING PLACEMENT.

WOOD CONSTRUCTION

1. STRUCTURAL LUMBER SHALL BE GRADE-MARKED DOUGLAS FIR-LARCH

BEAMS	4x OR BIGGER	No. 1 & No. 2
STUD	2x4 OR 2x6	No. 2
POSTS	4x OR BIGGER	No. 1

2. SILLS OR PLATES BEARING ON CONCRETE OR MASONRY WHICH IS WITHIN 48" OF EARTH SHALL BE PRESSURE TREATED, OR EQUAL, WOOD SILL PLATES SHALL BE BOLTED TO THE FOUNDATION WITH 5/8" DIAMETER x 10" BOLTS 4'-0" o.c. 12" MIN. FROM ENDS, OR 2 BOLTS MIN. PER PIECE. WHERE DIFFERENT SIZES AND/OR SPACING ARE REQUIRED, THEY SHALL GOVERN. INSTALL WITH 3"x3"x1/4" PLATE WASHER AT EACH ANCHOR BOLT.
3. GLU-LAM BEAMS MUST BE FABRICATED IN A LICENSED SHOP & SHALL BE 24F-V8 GRADE.
4. JOISTS SHALL BE BLOCKED AT SUPPORTS AND BRIDGED OR BLOCKED AT INTERVALS OF 8 FT WHERE JOISTS ARE 2x12 OR DEEPER.
5. JOISTS UNDER NON-BEARING PARTITIONS SHALL BE DOUBLED, EXCEPT AS NOTED.
6. LAGBOLTS (& SCREWS) SHALL BE PRE-DRILLED TO SHANK DIAMETER AND FULL DEPTH AND SCREWED (NOT DRIVEN) INTO PLACE.
7. CUT WASHERS SHALL BE PLACED UNDER HEADS AND NUTS OF ALL BOLTS AND UNDER HEADS OF LAGBOLTS. ONE CUT WASHER SHALL BE USED FOR BOLTS CONNECTING WOOD LEDGERS TO CONCRETE OR MASONRY WALLS.
8. ALL HARDWARE USED FOR WOOD CONNECTION SHALL BE SIMPSON STRONG-TIE PRODUCTS. INSTALL PER MANUFACTURERS RECOMMENDATIONS. ALTERNATE PRODUCTS WILL ONLY BE PERMITTED IF WRITTEN APPROVAL AND ACCEPTANCE IS OBTAINED BY ENGINEER.
9. ALL LUMBER SHALL HAVE A MOISTURE CONTENT NOT TO EXCEED 19% AT THE TIME OF FABRICATION OR CONSTRUCTION.
10. PROVIDE LEAD HOLE 40%-70% OF THREADED SHANK DIA. AND FULL DIA. FOR SMOOTH SHANK PORTION.
11. PLACE 2" FIREBLOCKING IN STUD WALLS AT CEILING AND FLOOR LEVELS, AT EACH 10' HEIGHT OF STUDS, AND BETWEEN STAIR STRINGERS AT SUPPORTS.

ICC-ES REPORT

SHOT PINS -	ESR-1799,	COLUMN CAP -	ESR-2604
HOLDOWNS -	ESR-2330	FRAMING CLIPS -	ESR-2606
STRONG WALL -	ESR-2652	PARALLAM -	ESR-1387
U HANGER -	ESR-2549 CC	GLU-LAM -	ESR-1940

OBSERVATION TABLE

STRUCTURAL OBSERVATION/ SIGNIFICANT CONSTRUCTION STAGES
(Only Checked Items are required)

Firm or Individual to be responsible for the "Structural Observation":
Name: ☐ Licensed Architect: ☐ Registered Engineer:
Phone: California Registration Number:

CONSTRUCTION STAGE	Construction Type	Elements/Connections to be observed
Foundation	☒ Footing, Stem Walls, Piers	3000 psi Concrete
	☐ Mat Foundation	
	☐ Caisson, Pile, Grade beams	
	☐ Stepping/Retaining	
	☐ Foundation, Hillside Special	
	☒ Anchors	Holdown Anchors
	☐ Others:	
Wall	☐ Concrete	
	☐ Masonry	
	☒ Wood	Shear Wall Nailing
	☒ Others:	WSWH-Simpson Wood Strong Wall
Frame	☐ Steel Moment Frame	
	☐ Steel Braced Frame	
	☐ Concrete Moment Frame	
	☐ Masonry Moment Frame	
	☐ Others:	
Diaphragm	☐ Concrete	
	☐ Steel Deck	
	☒ Wood	Plywood & Nailing
	☐ Others:	
Others		

DECLARATION BY OWNER OR OWNER'S REPRESENTATIVE

I, ☐ the owner of the proje ☒ the owner's representative, declare that the above listed firm or individual is hired by me to be the Structural Observer.

Signature Date

DECLARATION BY ARCHITECT OR ENGINEER OF RECORD (required if the Structural Observer is different from the Architect or Engineer of Record)

I, the Architect or Engineer of Record for the project, declare that the above listed firm or individual is designated by me to be responsible for the "Structural Observation').

Signature License No. Date

CONCRETE

ALL CONCRETE CONSTRUCTION AND DETAILING SHALL CONFORM TO THE LATEST EDITION OF ACI 318 MINIMUM 28 DAY STRENGTH 3500 PSI NORMAL WEIGHT CONCRETE TO BE USED AT FOUNDATION GRADE SLAB FLOOR BEAMS & FLOOR SLAB.

ALL CONCRETE IS TO BE MECHANICALLY VIBRATED WHEN PLACED, EXCEPT SLABS ON GRADE NEED BE VIBRATED ONLY AROUND UNDER-FLOOR DUCTS, PENETRATIONS, ETC. CONCRETE SHALL BE DEPOSITED AS NEAR AS POSSIBLE TO ITS FINAL POSITION AND SHALL BE PLACED SO AS TO AVOID SEGREGATION. VIBRATING EQUIPMENT SHALL NOT BE USED TO MOVE CONCRETE INTO POSITION. ALL REINFORCING, EMBED PLATES, ANCHORS, ETC, SHALL BE IN PLACE AND PROPERLY SECURED PRIOR TO PLACING CONCRETE. "WET STABBING" IS NOT ALLOWED.

MAXIMUM SLUMP = 4-1/2" FOR CONCRETE WITHOUT PLASTICIZER. IF PLASTICIZER IS USED, A MAXIMUM SLUMP OF 4 1/2" SHALL BE ACHIEVED PRIOR TO ADDING PLASTICIZER. A FINAL MAXIMUM SLUMP OF 8" SHALL BE ACHIEVED AFTER PLASTICIZER IS ADDED.

WATER CEMENT RATIO SHALL NOT EXCEED .45. CLOSURE POURS SHALL BE CAST AROUND COLUMNS ONLY AFTER THE STRUCTURE DEAD LOAD HAS BEEN APPLIED TO THE COLUMN.

ALL CONCRETE SLABS ON GRADE SHALL BE BOUND BY KEYED OR SAW CUT CONTROL JOINTS AS SHOWN ON THE FOUNDATION PLAN, SUCH THAT THE ENCLOSED AREA DOES NOT EXCEED 400 SQUARE FEET, UNLESS APPROVED OTHERWISE IN WRITING BY THE ARCHITECT. KEYED CONTROL JOINTS NEED TO OCCUR ONLY AT SLAB EDGES LEFT EXPOSED DURING PLACEMENT. ALL OTHER JOINTS MAY BE SAW CUT.

FLY ASH - IF PERMITTED BY ARCHITECTURAL SPECIFICATIONS OR REQUESTED BY CONTRACTOR, SHALL BE LIMITED TO 18% OF CEMENTITIOUS MATERIALS AND SHALL HAVE A REPLACEMENT FACTOR OF 1.2 RELATIVE TO CEMENT REPLACED.

ALL CONCRETE THAT WILL BE SUBJECTED TO FREEZING TEMPERATURES DURING ITS LIFE, INCLUDING WHILE WET, SHALL HAVE A WATER-CEMENT RATIO NOT EXCEEDING 0.53 BY WEIGHT AND SHALL CONTAIN ENTRAINED AIR PER ACI 301. SUCH CONCRETE SHALL BE PROVIDED FOR EXTERIOR SLABS, PERIMETER STEMS AND FOUNDATIONS, EXTERIOR CURBS AND GUTTERS, ETC.

GENERAL NOTES FOR STRUCTURAL OBSERVATION:

1. STRUCTURAL OBSERVATION IS REQUIRED FOR THE STRUCTURAL SYSTEM IN ACCORDANCE WITH THE INFORMATION BULLETIN CBC SECTION 1704 STRUCTURAL OBSERVATION IS THE VISUAL OBSERVATION AT THE CONSTRUCTION SITE OF THE ELEMENTS AND CONNECTIONS OF THE STRUCTURAL SYSTEM AT SIGNIFICANT CONSTRUCTION STAGES AND THE COMPLETE STRUCTURE FOR GENERAL CONFORMANCE TO THE APPROVED PLANS AND SPECIFICATIONS. STRUCTURAL OBSERVATION DOES NOT WAIVE THE RESPONSIBILITY FOR THE INSPECTIONS REQUIRED OF THE BUILDING INSPECTOR OR THE DEPUTY INSPECTOR.
2. THE OWNER SHALL EMPLOY A STATE OF CALIFORNIA REGISTERED CIVIL OR STRUCTURAL ENGINEER OR LICENSED ARCHITECT TO PERFORM THE STRUCTURAL OBSERVATION. THE DEPARTMENT OF BUILDING AND RECOMMENDS THE USE OF THE ENGINEER OR ARCHITECT RESPONSIBLE FOR THE SAFETY STRUCTURAL DESIGN WHO ARE INDEPENDENT OF THE CONTRACTOR.
3. THE STRUCTURAL OBSERVER SHALL PROVIDE EVIDENCE OF EMPLOYMENT BY THE OWNER OR THE OWNER'S REPRESENTATIVE. A LETTER FROM THE OWNER, THE OWNER'S REPRESENTATIVE, OR A COPY OF THE AGREEMENT FOR SERVICES SHALL BE SENT TO THE BUILDING INSPECTOR BEFORE THE FIRST SITE VISIT.
4. THE OWNER OR OWNER'S REPRESENTATIVE SHALL COORDINATE AND CALL FOR A MEETING BETWEEN THE ENGINEER OR ARCHITECT RESPONSIBLE FOR THE STRUCTURAL DESIGN, STRUCTURAL OBSERVER, CONTRACTOR, AFFECTED SUBCONTRACTORS AND DEPUTY INSPECTORS. THE PURPOSE OF THE MEETING SHALL BE TO IDENTIFY THE MAJOR STRUCTURAL ELEMENTS AND CONNECTIONS THAT AFFECT THE VERTICAL AND LATERAL LOAD SYSTEMS OF THE STRUCTURE AND TO REVIEW SCHEDULING OF THE REQUIRED OBSERVATIONS. A RECORD OF THE MEETING SHALL BE INCLUDED IN THE FIRST OBSERVATION REPORT SUBMITTED TO THE BUILDING INSPECTOR.
5. THE STRUCTURAL OBSERVER SHALL PERFORM SITE VISITS AT THOSE STEPS IN THE PROGRESS OF THE WORK THAT ALLOW FOR CORRECTION OF DEFICIENCIES WITHOUT SUBSTANTIAL EFFORT OR UNCOVERING OF THE WORK INVOLVED. AT A MINIMUM, THE LISTED SIGNIFICANT CONSTRUCTION STAGES ON THE FOLLOWING STRUCTURAL OBSERVATION/SIGNIFICANT CONSTRUCTION STAGES TABLE REQUIRE A SITE VISIT AND AN OBSERVATION REPORT FROM THE STRUCTURAL OBSERVER.
6. THE STRUCTURAL OBSERVER SHALL PREPARE A REPORT OF THE STRUCTURAL OBSERVATION REPORT FORM IN/FORM.08 (PART 1) FOR EACH SIGNIFICANT STAGE OF CONSTRUCTION OBSERVED. THE ORIGINAL OF THE STRUCTURAL OBSERVATION REPORT SHALL BE SENT TO THE BUILDING INSPECTOR'S OFFICE AND SHALL BE SIGNED AND SEALED (WET STAMP) BY THE RESPONSIBLE STRUCTURAL OBSERVER. ONE COPY OF THE OBSERVATION REPORT SHALL BE ATTACHED TO THE APPROVED PLANS. THE COPY ATTACHED TO THE PLANS SHALL BE SIGNED AND SEALED (WET STAMP) BY THE RESPONSIBLE STRUCTURAL OBSERVER OR THEIR DESIGNEE. COPIES OF THE REPORT SHALL ALSO BE GIVEN TO THE OWNER, CONTRACTOR, AND DEPUTY INSPECTOR. ANY DEFICIENCY NOTED ON THE OBSERVATION REPORT WILL BECOME THE RESPONSIBILITY OF THE STRUCTURAL ENGINEER OF RECORD TO VERIFY ITS COMPLETION BY HIM (HER), OR BY A REGISTERED DEPUTY INSPECTOR AT THE DISCRETION OF THE STRUCTURAL OBSERVER.
7. A FINAL OBSERVATION REPORT AND THAT OF THE REGISTERED DEPUTY INSPECTOR MUST BE SUBMITTED WHICH SHOWS THAT ALL OBSERVED DEFICIENCIES WERE RESOLVED AND STRUCTURAL SYSTEM GENERALLY CONFORMS WITH THE APPROVED PLANS AND SPECIFICATIONS. THE DEPARTMENT OF BUILDING AND SAFETY WILL NOT ACCEPT THE STRUCTURAL WORK WITHOUT THIS FINAL OBSERVATION REPORT AND THAT OF THE REGISTERED DEPUTY INSPECTOR (WHEN PROVIDED) AND THE CORRECTION OF SPECIFIC DEFICIENCIES NOTED DURING NORMAL BUILDING INSPECTION.
8. THE STRUCTURAL OBSERVER SHALL PROVIDE THE ORIGINAL STAMPED AND SIGNED STRUCTURAL DEPARTMENT OF BUILDING AND SAFETY BUILDING THE COUNTY OF LOS ANGELES OBSERVATION REPORT TO INSPECTOR.
9. WHEN THE OWNER ELECTS TO CHANGE THE STRUCTURAL OBSERVER OF RECORD, THE OWNER SHALL:
   A) NOTIFY THE BUILDING INSPECTOR IN WRITING BEFORE THE NEXT INSPECTION BY SUBMITTING COMPLETED "STRUCTURAL OBSERVATION PROGRAM AND DESIGNATION OF THE STRUCTURAL OBSERVER" FORM IN/FORM.08 (PART 2)
   B) CALL AN ADDITIONAL RECONSTRUCTION MEETING.
   C) FURNISH THE REPLACEMENT STRUCTURAL OBSERVER WITH A COPY OF ALL PREVIOUS OBSERVATION REPORTS. THE REPLACEMENT STRUCTURAL OBSERVER SHALL APPROVE THE CORRECTION OF THE ORIGINAL OBSERVED DEFICIENCIES UNLESS OTHERWISE APPROVED BY PLAN CHECK SUPERVISION. THE POLICY OF THE DEPARTMENT SHALL BE TO CORRECT ANY PROPERTY NOTED DEFICIENCIES WITHOUT CONSIDERATION OF THEIR SOURCE.
10. THE ENGINEER OR ARCHITECT OF RECORD SHALL DEVELOP ALL CHANGES RELATING TO THE STRUCTURAL SYSTEMS. THE BUILDING DEPARTMENT SHALL REVIEW AND APPROVE ALL CHANGES TO THE APPROVED PLANS AND SPECIFICATIONS.

ABBREVIATIONS

A.B.C.	AGGREGATE BASE COURSE
A.F.F.	ABOVE FINISHED FLOOR
ALT.	ALTERNATE
A.B.	ANCHOR BOLT
@	AT (MEASUREMENT)
BM	BEAM
B.F.F	BELOW FINISHED FLOOR
B.O.B.	BOTTOM OF BEAM
B.O.D.	BOTTOM OF DECK
B.O.F.	BOTTOM OF FOOTING
BRG	BEARING
C.I.P.	CAST IN PLACE
CJ	CEILING JOIST
CJP	COMPLETE JOINT PENETRATION
C.L.	CENTERLINE
C.L.B.	CENTERLINE OF BEAM
C.L.C.	CENTERLINE OF COLUMN
C.L.F.	CENTERLINE OF FOOTING
C.L.L.	CENTERLINE OF LEDGER
C.L.W.	CENTERLINE OF WALL
CLR	CLEAR
CONC.	CONCRETE
CONC C.J.	CONCRETE CONTROL JOINT
CONC S.J.	CONCRETE SAWCUT JOINT
C.M.U.	CONCRETE MASONRY UNIT
CONN	CONNECTION
CONT.	CONTINUOUS
DEG	DEGREE
D.L.	DEAD LOAD
o OR DIA.	DIAMETER
DN	DOWN
DWG(S)	DRAWING(S)
E.O.S.	EDGE OF SLAB
EQ	EQUAL
EQUIP	EQUIPMENT
EAXP. BOLT	EXPANSION BOLT
EXP. JT (E.J.)	EXPANSION JOINT
E.W.	EACH WAY
F.F.	FINISHED FLOOR
FJ	FLOOR JOIST
F.O.M.	FACE OF MEMBER
F.O.S.	FACE OF STEEL
F.O.W.	FACE OF WALL
GA	GAGE
GALV	GALVANIZED
G.S.N.	GENERAL STRUCT'L NOTES
GLB	GLUED-LAMINATED BEAM
I.F.W.	INSIDE FACE OF WALL
HORIZ	HORIZONTAL
K(KIP)	1000 POUNDS
L.L.	LIVE LOAD
LBS (#)	POUNDS
LLH	LONG LEG HORIZONTAL
LLV	LONG LEG VERTICAL
LSH	LONG SIDE HORIZONTAL
LSV	LONG SIDE VERTICAL
MFR('S)	MANUFACTURER('S)
MAS C.J.	MASONRY CONTROL JOINT
MECH'L	MECHANICAL
MLB	MICROLLAM BEAM
N/A	NOT APPLICABLE
N.T.S.	NOT TO SCALE
O.C.	ON CENTER
O.F.W.	OUTSIDE FACE OF WALL
OPP	OPPOSITE
P.C.	PRECAST CONCRETE
PLF	POUNDS PER LINEAR FOOT
PREFAB	PREFABRICATED
PSF	POUNDS PER SQUARE FOOT
PSI	POUNDS PER SQUARE INCH
REINF	REINFORCING
RJ	ROOF JOIST
RR	ROOF RAFTER
SLH	SHORT LEG HORIZONTAL
SLV	SHORT LEG VERTICAL
SIM	SIMILAR
SQ.	SQUARE
STD	STANDARD
T.L.	TOTAL LOAD
T.O.B.	TOP OF BEAM
T.O.D.	TOP OF DECK
T.O.F.	TOP OF FOOTING
T.O.L.	TOP OF LEDGER
T.O.M.	TOP OF MASONRY
T.O.P.	TOP OF PLATE
T.O.AS.	TOP OF STEEL
T.O.W.	TOP OF WALL
TYP	TYPICAL
U.N.O.	UNLESS NOTED OTHERWISE
VERT	VERTICAL
W.W.F.	WELDED WIRE FABRIC
W/	WITH
W/O	WITHOUT

TITANIA CONSULTANTS

REVISIONS

No	DATE

PROPERTY - 298 MUNICH STREET
SAN FRANCISCO, CA 94112

GENERAL NOTES

DRAWN

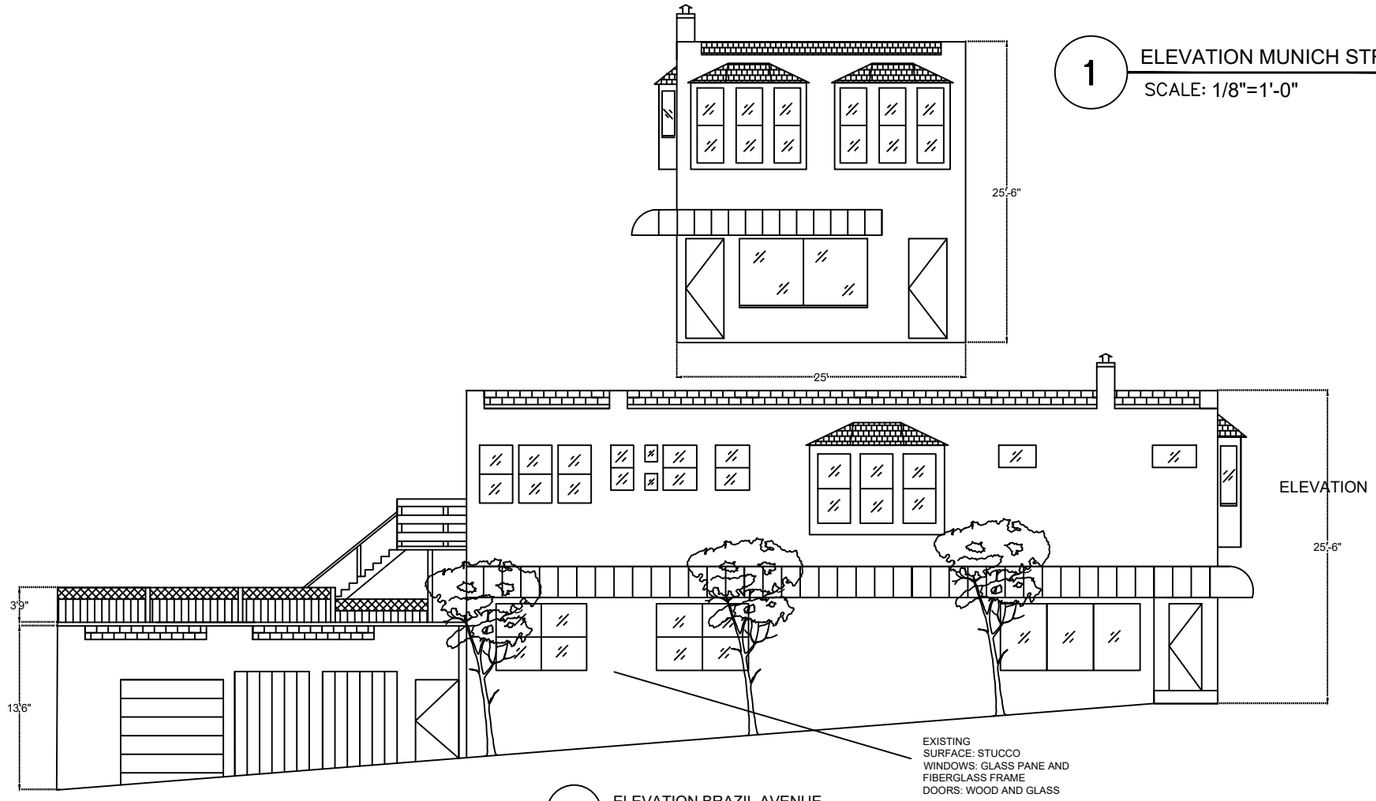
CHECKED

DATE

SCALE
AS NOTED

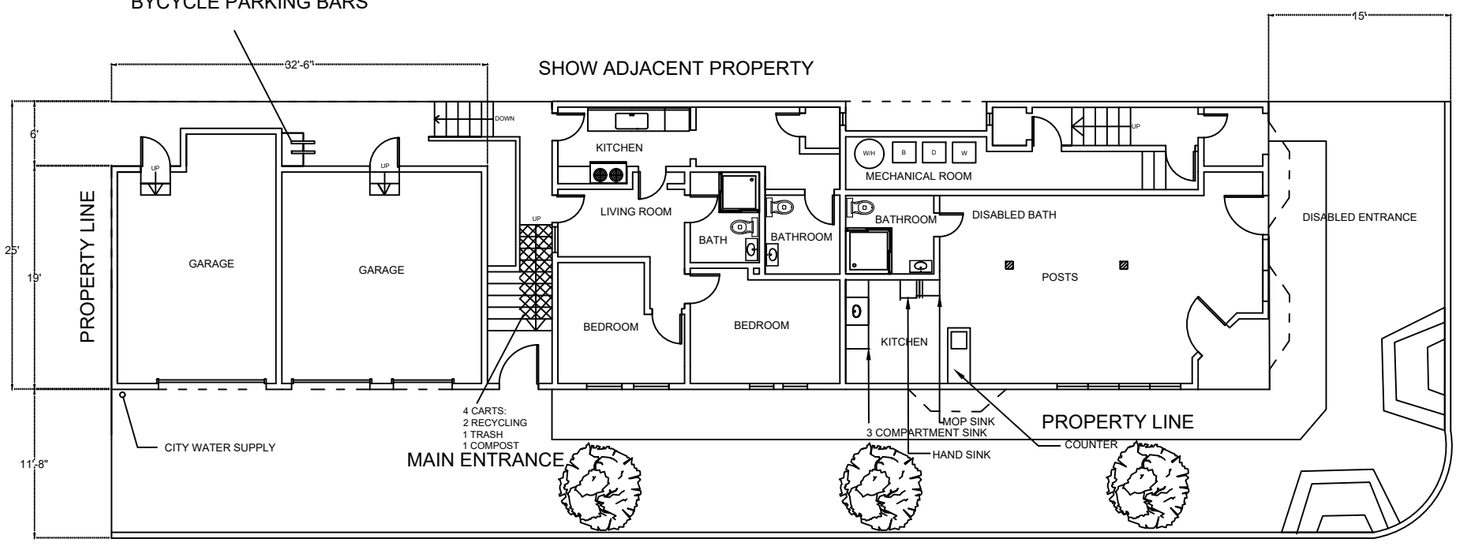
SHEET NUMBER
1 OF 38

S1.1

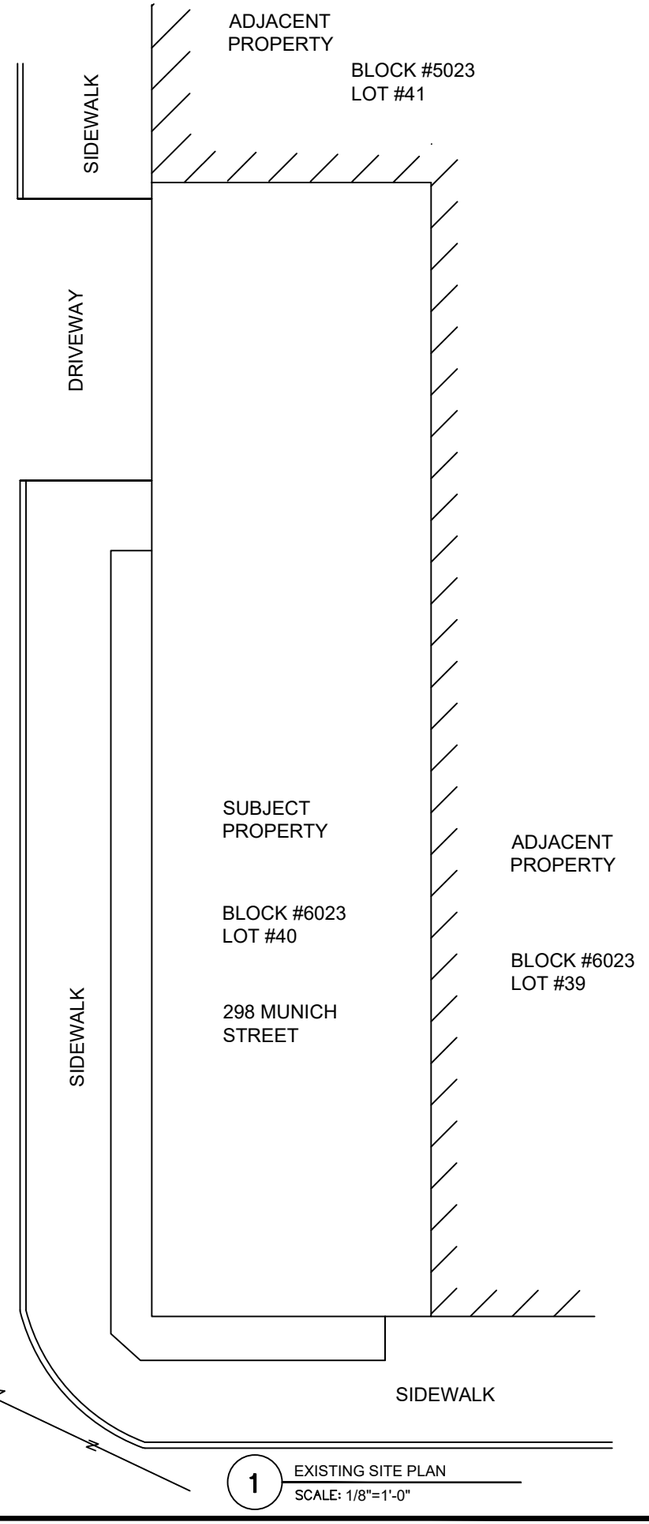


1 ELEVATION MUNICH STREET
SCALE: 1/8"=1'-0"

1 ELEVATION BRAZIL AVENUE
SCALE: 1/8"=1'-0"



1 EXISTING FIRST FLOOR PLAN
SCALE: 1/8"=1'-0"



1 EXISTING SITE PLAN
SCALE: 1/8"=1'-0"

BUILDING CODE EXPERTS ARCHITECTS AND MEP DESIGNERS

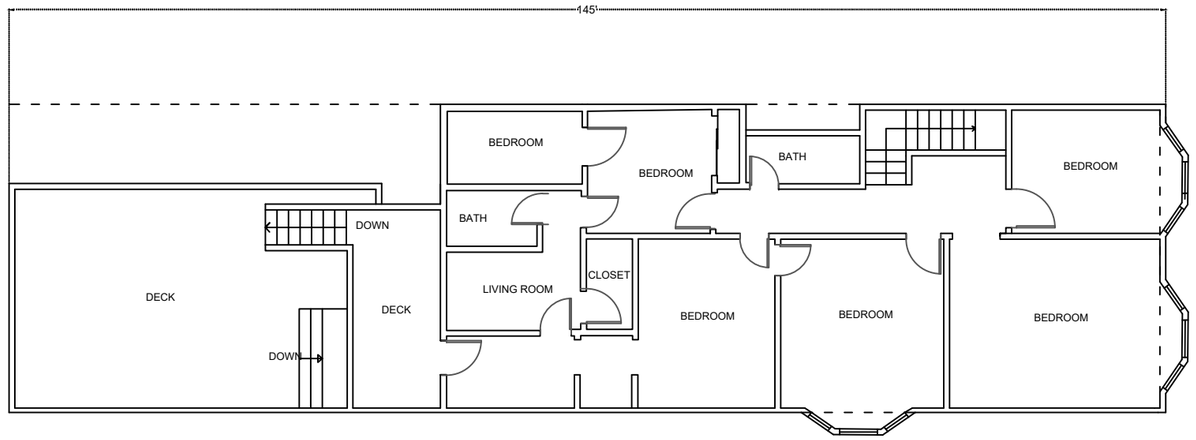
REVISIONS

No	DATE

PROPERTY- 298 MUNICH STREET
SAN FRANCISCO, CA 94112

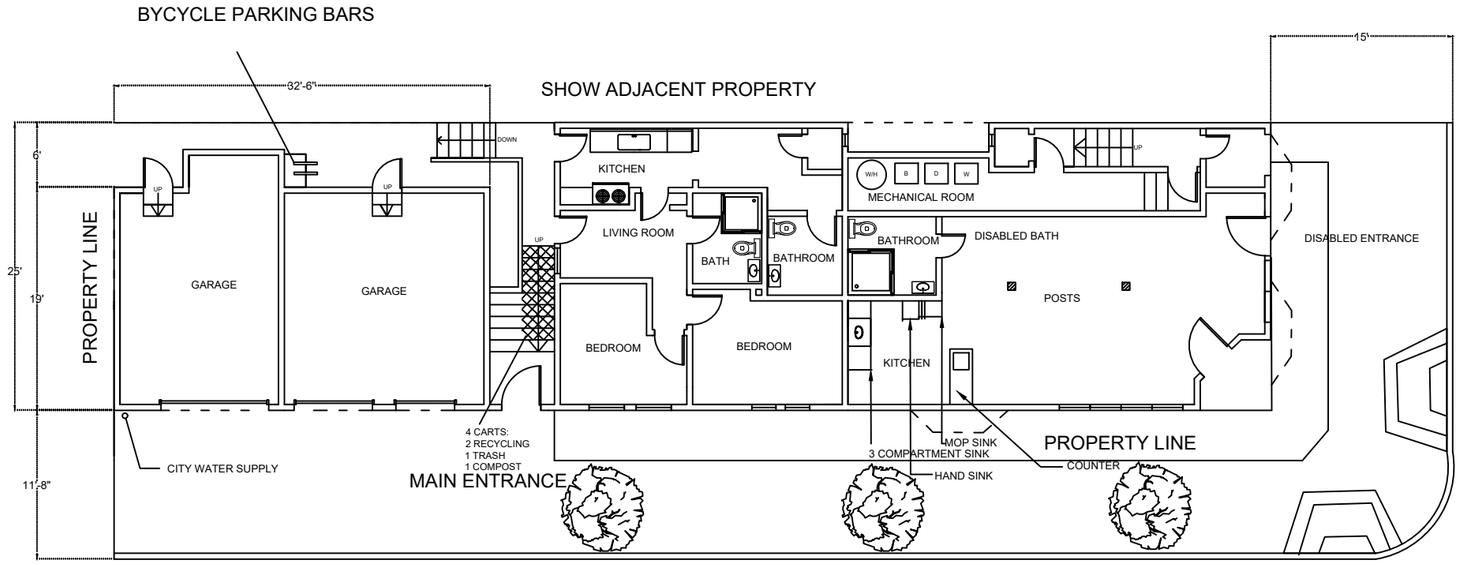
DRAWN
CHECKED
DATE
06.13.2025
SCALE
AS NOTED

A-1



2 EXISTING 2ND FLOOR PLAN

SCALE: 1/8"=1'-0"



2 EXISTING FIRST FLOOR PLAN

SCALE: 1/8"=1'-0"

BUILDING CODE EXPERTS ARCHITECTS AND MEP DESIGNERS

REVISIONS

No	DATE

PROPERTY- 298 MUNICH STREET
SAN FRANCISCO, CA 94112

DRAWN

CHECKED

DATE
06.19.2025

SCALE
AS NOTED

A-2

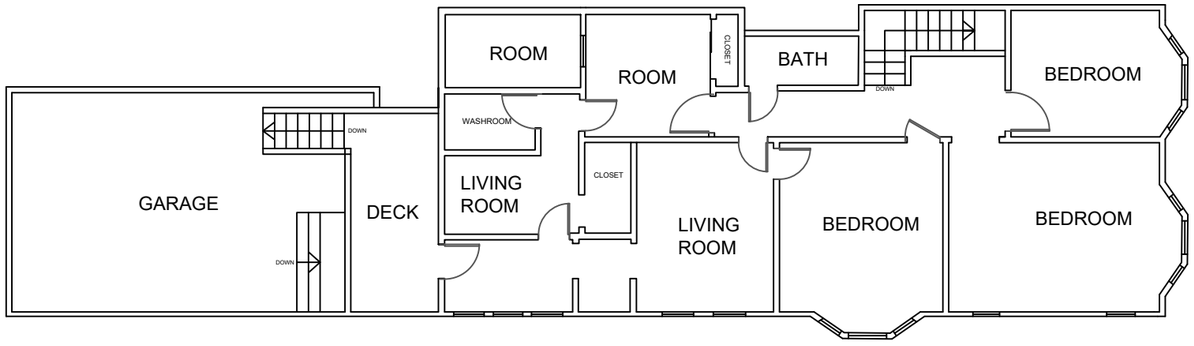
CODES:
2022 California Building Code
2022 California Building Electrical Plumbing and Housing Codes

PROPERTY INFO:
EXISTING OCCUPANCY: R/3 M
PROPOSED:CHANGE OF OCCUPANCY TO R-2(4 UNITS)
2 STORIES

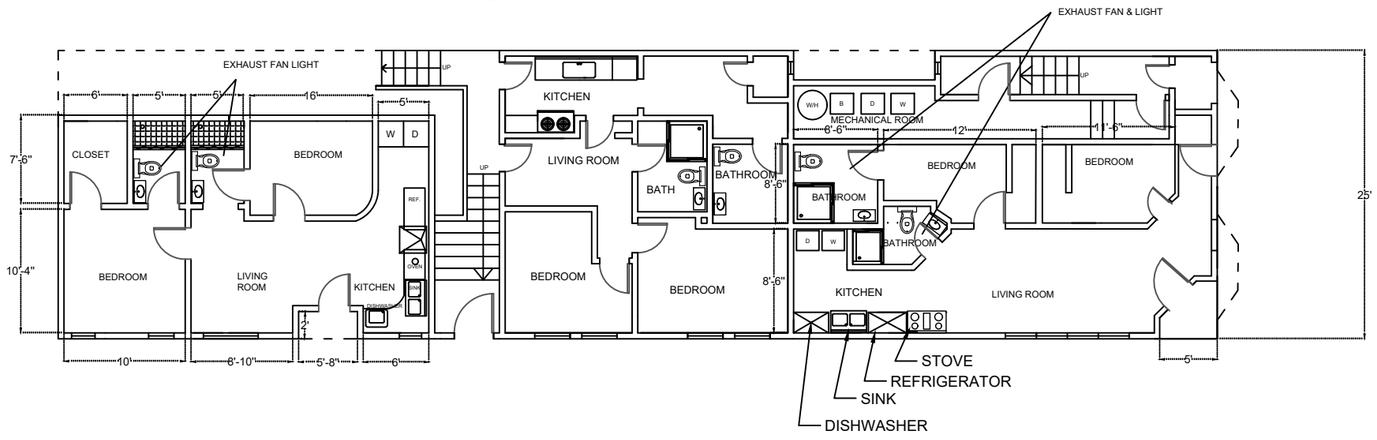
SCOPE OF WORK
CONVERT THE GARAGE TO LIVING UNIT
CONVERT THE COMMERCIAL SPACE TO RESIDENTIAL
EXISTING IS 3 UNITS (2 RESIDENTIAL, 1 COMMERCIAL), PROPOSED IS 4 UNITS(4 RESIDENTIAL)
PROPOSED UNIT 3 NUMBER(COMMERCIAL CONVERSION): 298 MUNICH STREET(KEEP AS IS), OR 296 MUNICH STREET IF IT MUST BE CHANGED
PROPOSED UNIT 4 NUMBER: 931 BRAZIL AVENUE
NO EXCAVATION NEEDED
UNITS WILL BE ADDED PER ORDINANCE NO 162-16
PROJECT WILL CONFORM TO AB-094

DRAWING INDEX:

A-1 SITE PLAN
A-2 (E) 1ST AND 2ND FLOOR
A-3 PROPOSED UNITS PLANS
A-4 (E) ELEVATION
A-5 PROPOSED ELEVATION
A-6 (E) SECTION A-A
A-7 PROPOSED SECTION A-A
A-8 BLOCK AND LOT#
A-9 HISTORICAL MAP
A-10 AERIAL MAP



3 EXISTING 2ND FLOOR PLAN
SCALE: 1/8"=1'-0"



3 EXISTING GROUND FLOOR PLAN WITH PROPOSED 2 UNITS
SCALE: 1/8"=1'-0"

BUILDING CODE EXPERTS ARCHITECTS AND MEP DESIGNERS

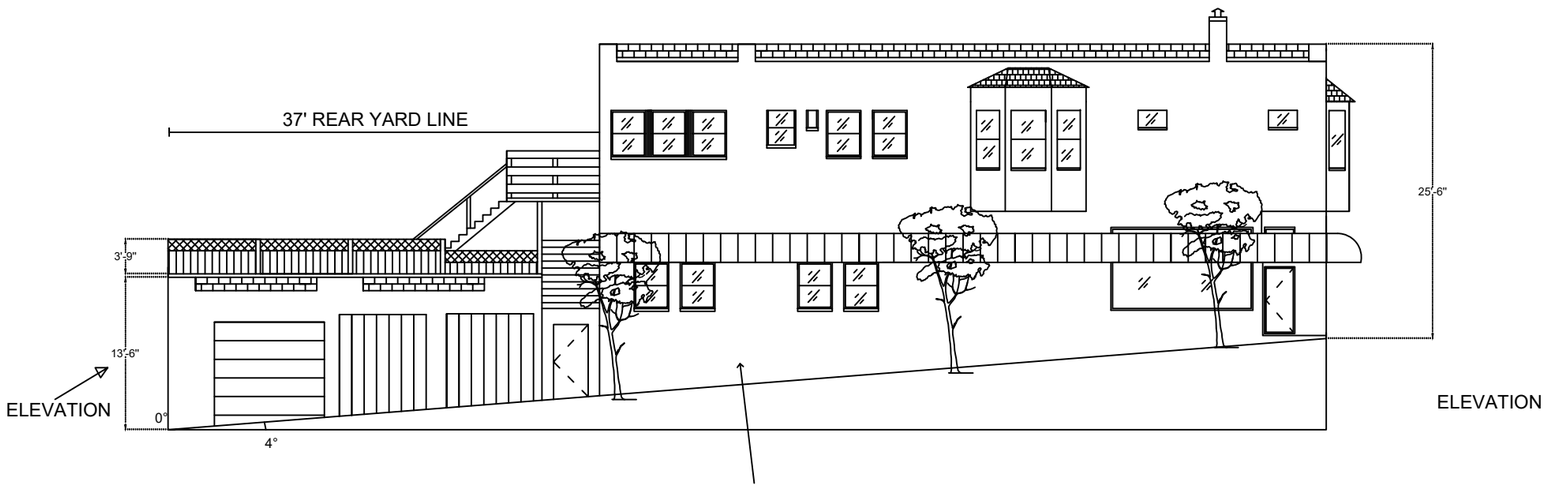
REVISIONS

No	DATE

PROPERTY- 298 MUNICH STREET
SAN FRANCISCO, CA 94112

DRAWN
CHECKED
DATE
06.19.2025
SCALE
AS NOTED

A-3



DOUBLE HUNG
WINDOWS

SURFACE: STUCCO
WINDOWS: GLASS PANE AND
FIBERGLASS FRAME
DOORS: WOOD AND GLASS

4 EXISTING ELEVATION BRAZIL AVENUE
SCALE: 1/8"=1'-0"

BUILDING CODE EXPERTS ARCHITECTS AND MEP DESIGNERS

REVISIONS

No	DATE

PROPERTY- 298 MUNICH STREET
SAN FRANCISCO, CA 94112

DRAWN

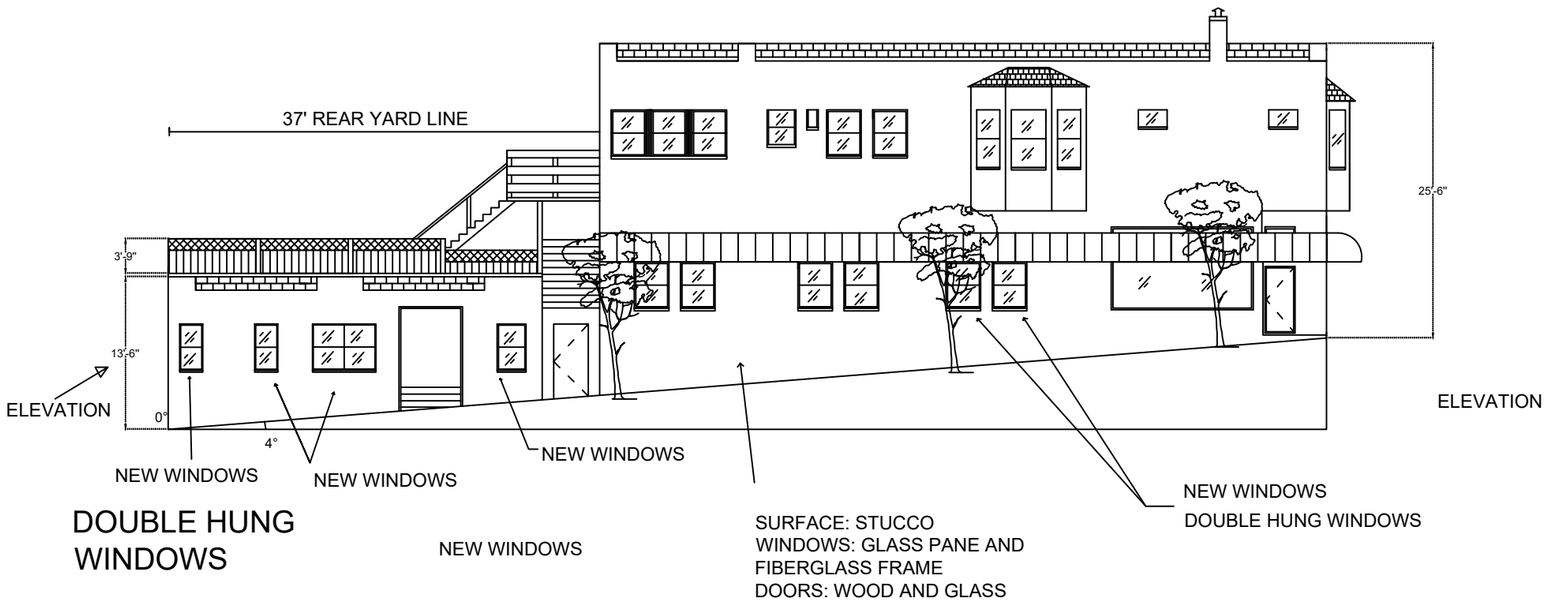
CHECKED

DATE
06.13.2025

SCALE
AS NOTED

SHEET NUMBER
1 OF 38

A-4



5 PROPOSED ELEVATION BRAZIL AVENUE

SCALE: 1/8"=1'-0"

BUILDING CODE EXPERTS ARCHITECTS AND MEP DESIGNERS

REVISIONS

No	DATE

PROPERTY- 298 MUNICH STREET
SAN FRANCISCO, CA 94112

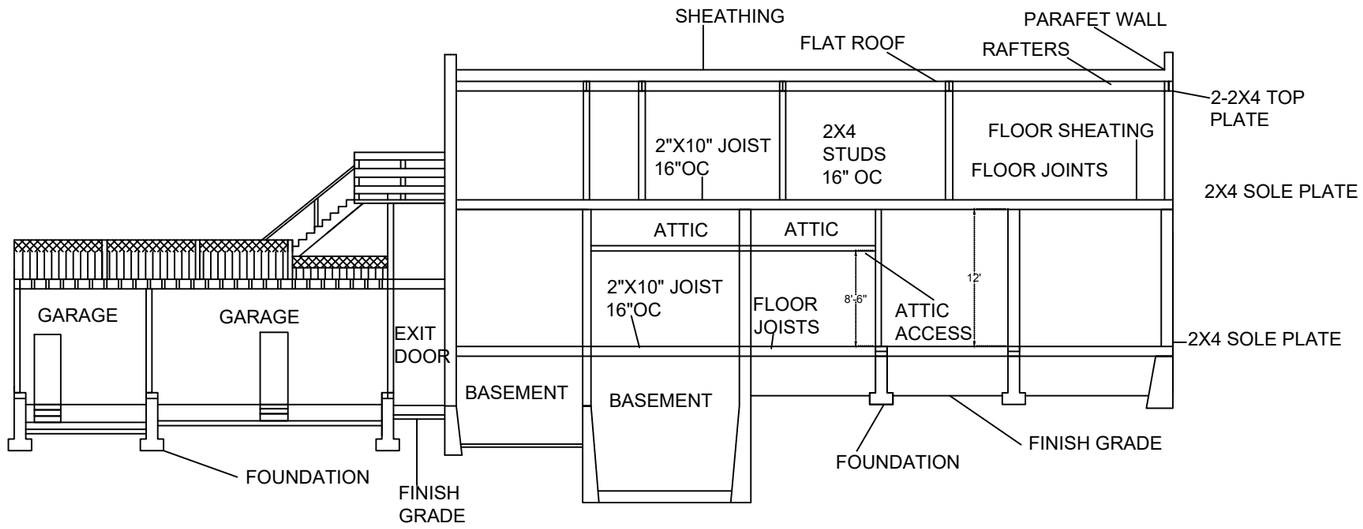
DRAWN

CHECKED

DATE
06.13.2025

SCALE
AS NOTED

A-5



6 EXISTING SECTION A-A

SCALE: 1/8"=1'-0"

BUILDING CODE EXPERTS ARCHITECTS AND MEP DESIGNERS

REVISIONS

No	DATE

PROPERTY - 298 MUNICH STREET
SAN FRANCISCO, CA 94112

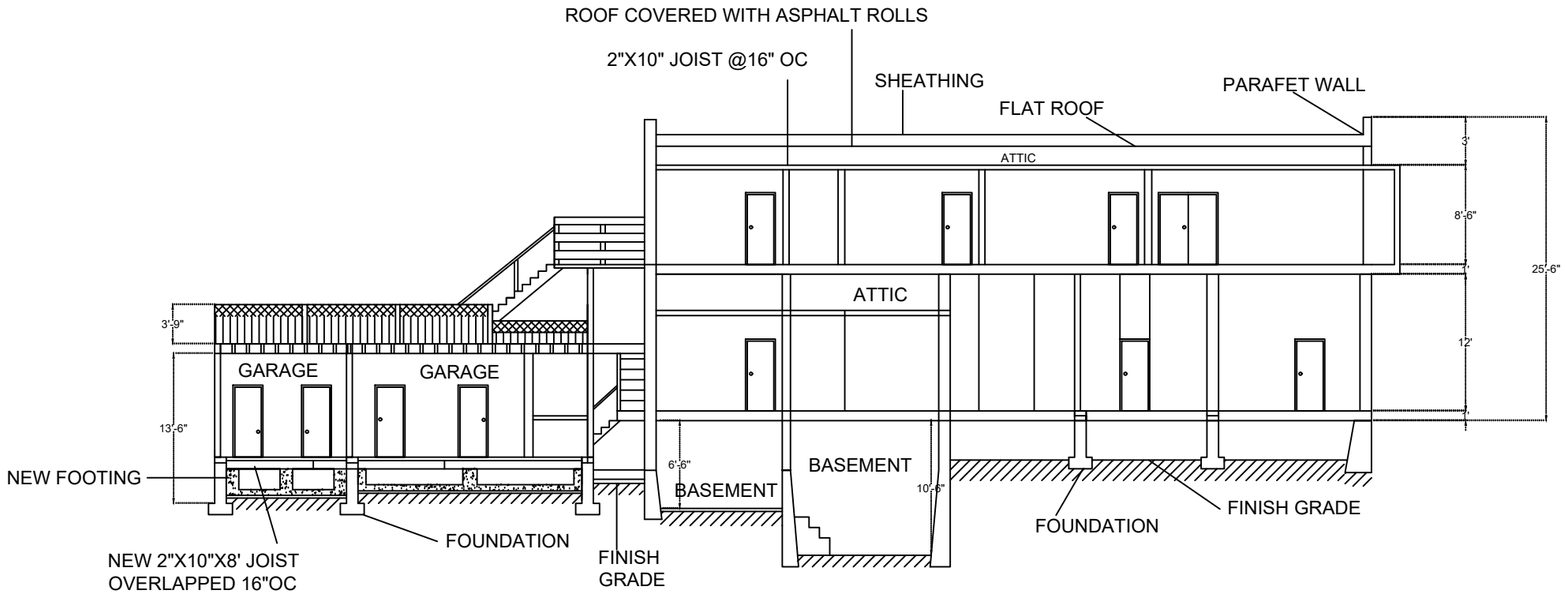
DRAWN

CHECKED

DATE
06.13.2025

SCALE
AS NOTED

A-6



6 PROPOSED SECTION A-A

SCALE: 1/8"=1'-0"

BUILDING CODE EXPERTS
ARCHITECTS AND MEP DESIGNERS

REVISIONS

No	DATE

PROPERTY- 298 MUNICH STREET
SAN FRANCISCO, CA 94112

DRAWN

CHECKED

DATE
06.13.2025

SCALE
AS NOTED

A-7

MOSCOW

EXCELSIOR AVE.

BRAZIL AVE

6023

MUNICH

BUILDING CODE EXPERTS
ARCHITECTS AND MEP DESIGNERS

REVISIONS

No	DATE

PROPERTY- 298 MUNICH STREET
SAN FRANCISCO, CA 94112

DRAWN

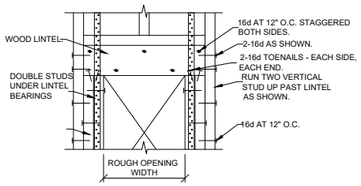
CHECKED

DATE
06.12.2025

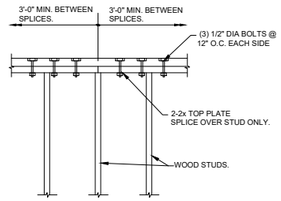
SCALE
AS NOTED

SHEET NUMBER
1 OF 38

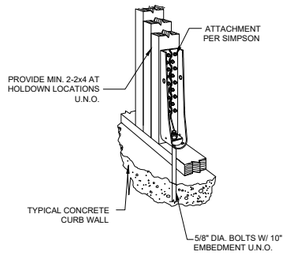
A-8



1 WOOD LINTEL DETAIL
NOT TO SCALE

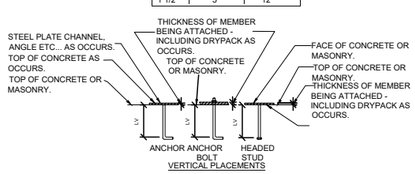


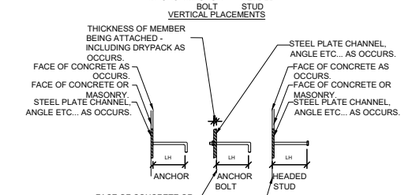
2 TYPICAL TOP PLATE SPLICE DETAIL
NOT TO SCALE



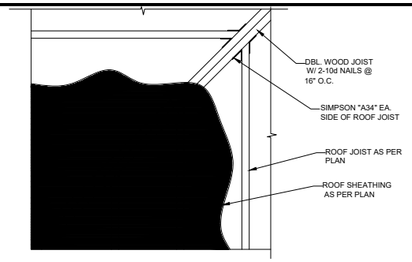
3 TYP. HOLDOWN DETAIL
NOT TO SCALE

ANCHOR SIZE	HORIZONTAL CAST EMBEDMENT (LH)	VERTICAL CAST EMBEDMENT (LV)
3/8"	5"	7"
1/2"	5"	8"
5/8"	5"	8"
3/4"	5"	8"
7/8"	5"	8"
1"	5"	9"
1 1/4"	5"	12"
1 1/2"	5"	12"





4 ANCHOR AND ANCHOR BOLT EMBEDMENTS
NOT TO SCALE



5 JOIST AT HIP/ VALLEY
NOT TO SCALE

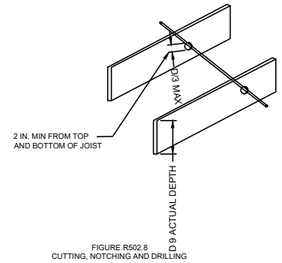
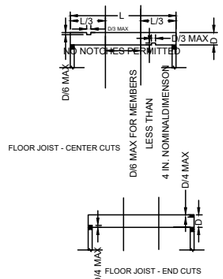
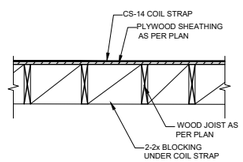


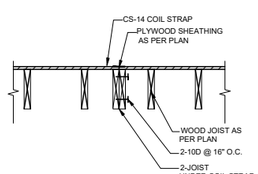
FIGURE R502.8
CUTTING, NOTCHING AND DRILLING



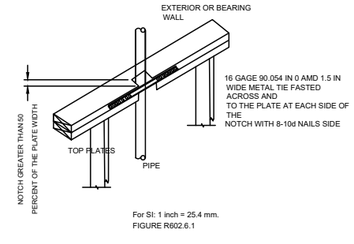
6 HOLES & NOTCHES IN JOIST FRAMING
NOT TO SCALE



7 COIL STRAP PERPENDICULAR TO WOOD JOIST
NOT TO SCALE

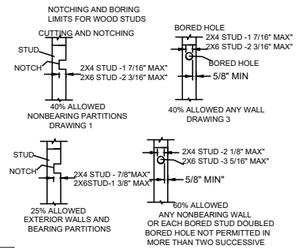


8 COIL STRAP PARALLEL TO WOOD JOIST
NOT TO SCALE

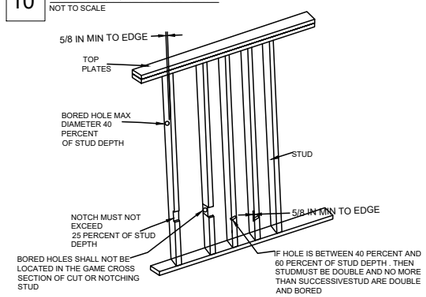


For SI: 1 inch = 25.4 mm.
FIGURE R602.6.1

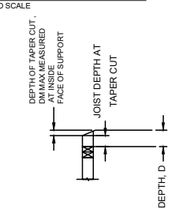
9 HOLES & NOTCHES IN TOP PLATE
NOT TO SCALE



10 HOLES & NOTCHES IN SILL PLATE
NOT TO SCALE

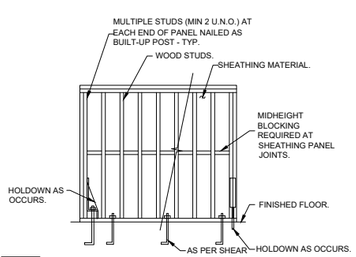


11 HOLES & NOTCHES IN WALL STUD
NOT TO SCALE



12 HOLES & NOTCHES IN JOIST FRAMING
NOT TO SCALE

EXTENTS OF WOOD STUD WALL WHERE OCCURS



15 ONE-STORY SHEAR WALL ELEVATION
NOT TO SCALE

BUILDING CODE EXPERTS ARCHITECTS AND MEP DESIGNERS

REVISIONS

No	DATE

HOUSE- 298 MUNICH STREET
SAN FRANCISCO, CA 94112

TYP. SECTION DETAIL

DRAWN

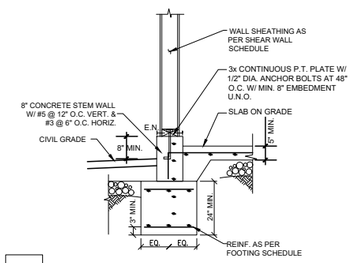
CHECKED

DATE
06.13.2025

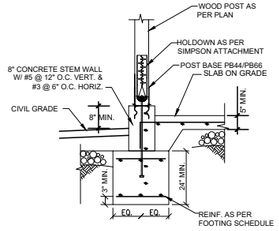
SCALE
AS NOTED

SHEET NUMBER
1 OF 38

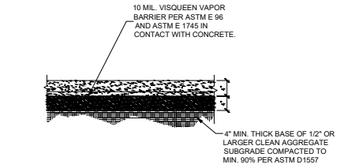
S3.1



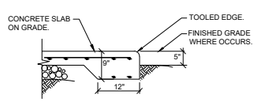
1 WOOD WALL FOOTING DETAIL
NOT TO SCALE



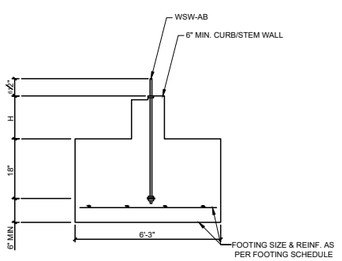
2 HOLDOWN FOOTING DETAIL
NOT TO SCALE



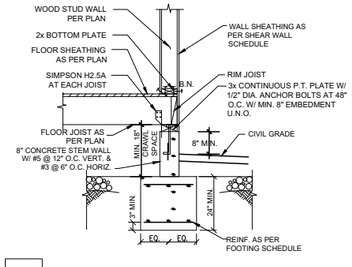
3 SLAB ON GRADE
NOT TO SCALE



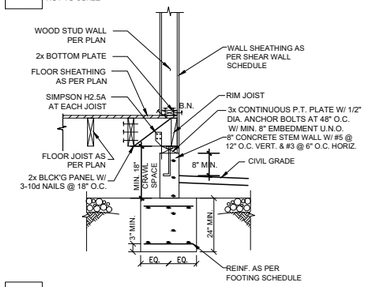
4 THICKEN SLAB DETAIL
NOT TO SCALE



5 FOOTING DETAIL FOR WSWH 18x7
NOT TO SCALE

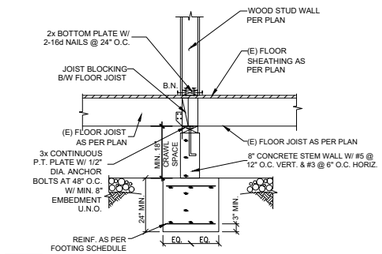


6 WOOD WALL FOOTING DETAIL
NOT TO SCALE

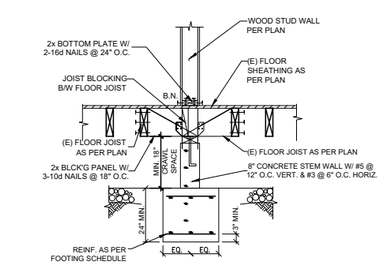


7 WOOD WALL FOOTING DETAIL
NOT TO SCALE

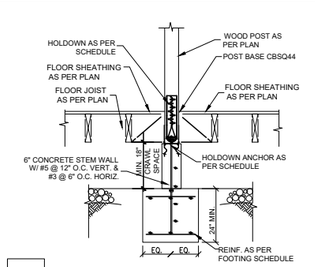
8 WOOD WALL FOOTING DETAIL
NOT TO SCALE



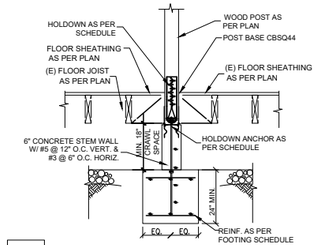
9 WOOD WALL FOOTING DETAIL
NOT TO SCALE



10 WOOD WALL FOOTING DETAIL
NOT TO SCALE



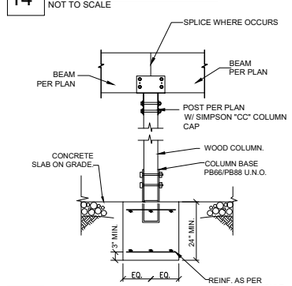
11 WOOD POST ON CURB WALL
NOT TO SCALE



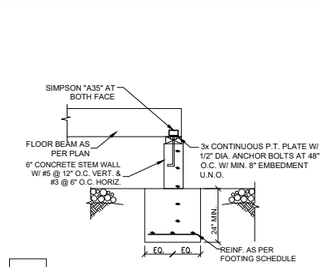
12 WOOD POST ON CURB WALL
NOT TO SCALE

13 WOOD POST ON CURB WALL
NOT TO SCALE

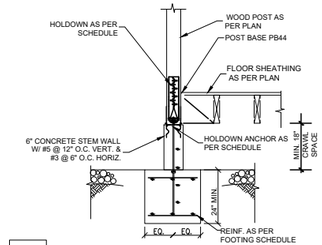
14 FOOTING DETAIL FOR WSWH 24x11
NOT TO SCALE



15 WOOD POST FOOTING DETAIL
NOT TO SCALE

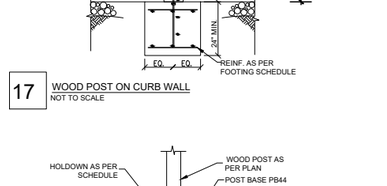


16 WOOD BEAM ON CURB WALL
NOT TO SCALE

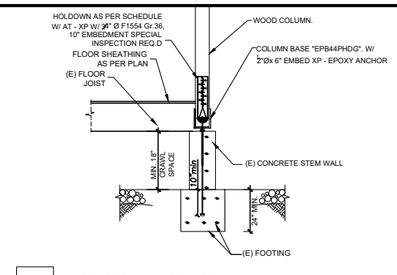


17 WOOD POST ON CURB WALL
NOT TO SCALE

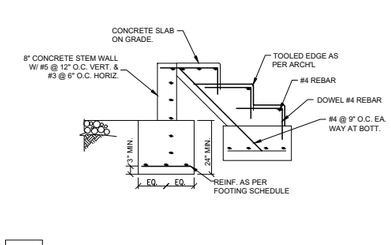
18 WOOD POST ON CURB WALL
NOT TO SCALE



20 WOOD POST ON (E) FOOTING DETAIL
NOT TO SCALE



21 WOOD POST ON (E) FOOTING DETAIL
NOT TO SCALE



22 CONCRETE STAIRCASE DETAIL
NOT TO SCALE

23 WOOD WALL FOOTING DETAIL
NOT TO SCALE

BUILDING CODE EXPERTS ARCHITECTS AND MEP DESIGNERS

REVISIONS

No	DATE

HOUSE- 298 MUNICH STREET
SAN FRANCISCO, CA 94112

FOOTING SECTION DETAILS

DRAWN

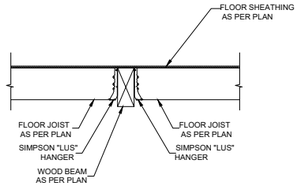
CHECKED

DATE
06.13.2025

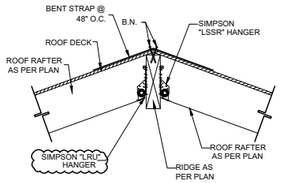
SCALE
AS NOTED

SHEET NUMBER
1 OF 38

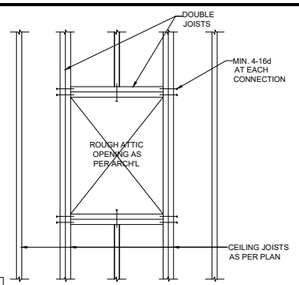
S3.1



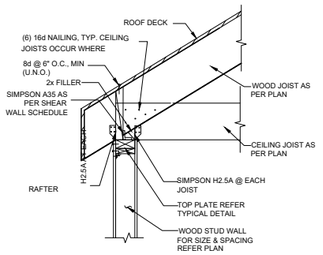
1 JOIST TO WOOD BEAM CONNECTION
NOT TO SCALE



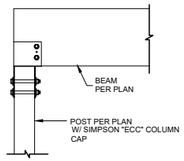
6 WOOD JOIST ON (E) RIDGE BEAM
NOT TO SCALE



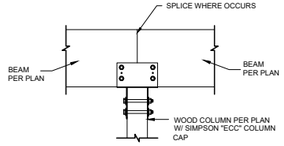
11 TYP. ATTIC OPENING IN CEILING
NOT TO SCALE



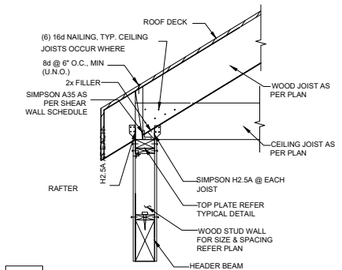
2 WOOD JOIST ON WOOD WALL
NOT TO SCALE



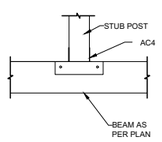
7 TYPICAL WOOD BEAM AT WOOD COLUMN
NOT TO SCALE



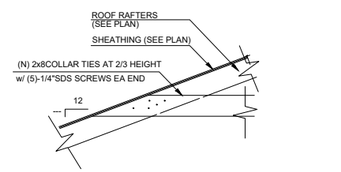
12 TYPICAL WOOD BEAM AT WOOD COLUMN
NOT TO SCALE



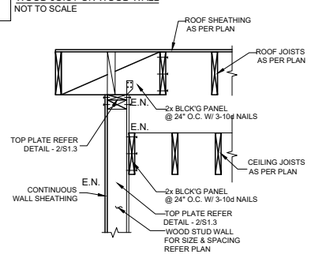
3 WOOD JOIST ON WOOD WALL
NOT TO SCALE



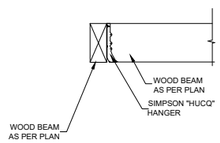
8 WOOD POST AT WOOD BEAM
NOT TO SCALE



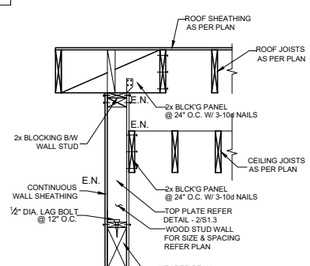
13 COLLAR TIE CONNECTION DETAIL
NOT TO SCALE



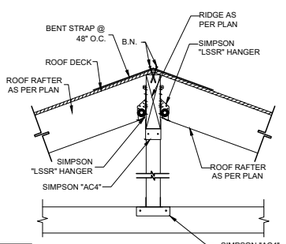
4 WOOD JOIST PARALLEL TO WOOD WALL
NOT TO SCALE



9 WOOD BEAM TO WOOD BEAM CONNECTION
NOT TO SCALE



5 WOOD JOIST PARALLEL TO WOOD WALL
NOT TO SCALE



10 WOOD JOIST ON (E) RIDGE BEAM
NOT TO SCALE

BUILDING CODE EXPERTS ARCHITECTS AND MEP DESIGNERS

REVISIONS

No	DATE

HOUSE- 298 MUNICH STREET
SAN FRANCISCO, CA 94112

FRAMING SECTION DETAILS

DRAWN

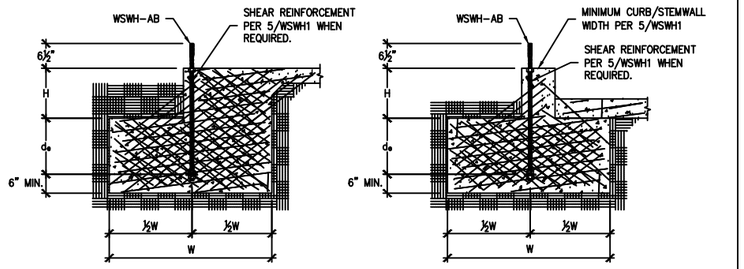
CHECKED

DATE
06.13.2025

SCALE
AS NOTED

SHEET NUMBER
1 OF 38

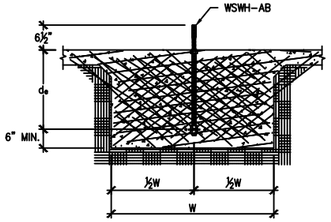
S3.2



SLAB ON GRADE FOUNDATION

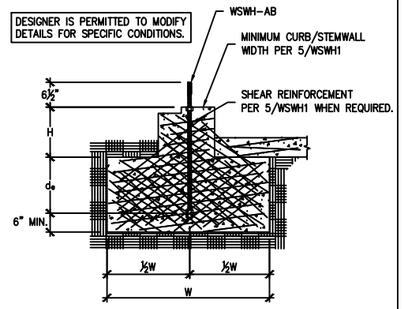
CURB OR STEMWALL FOUNDATION

NOTES :
1. SEE 2/WSWH1 FOR DIMENSIONS AND ADDITIONAL NOTES.
2. SEE 5/WSWH1 FOR SHEAR REINFORCEMENT WHEN REQUIRED.
3. MAXIMUM H = l_e–d_e. SEE 3/WSWH1 AND 4/WSWH1 FOR l_e.



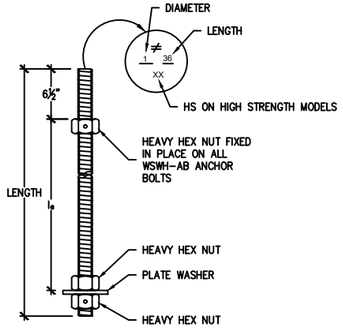
INTERIOR FOUNDATION

DESIGNER IS PERMITTED TO MODIFY DETAILS FOR SPECIFIC CONDITIONS.



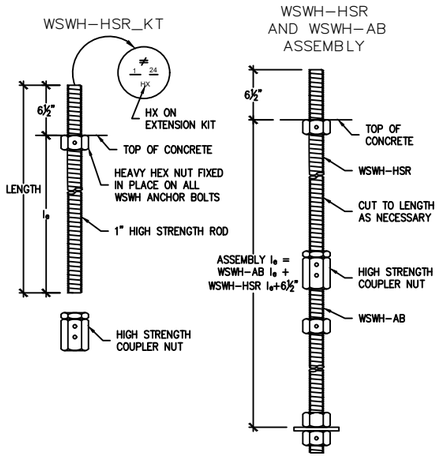
BRICK LEDGE FOUNDATION

STRONG–WALL® WSWH ANCHORAGE – TYPICAL SECTIONS | 1



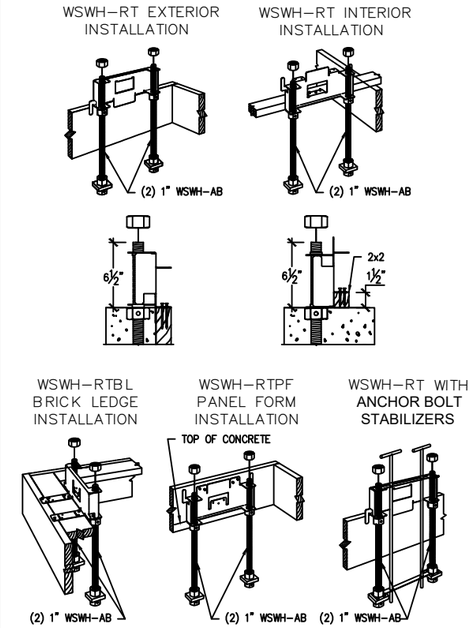
WSWH PANEL MODEL	MODEL NO.	DIAMETER	LENGTH	le
WSWH12, WSWH18 AND WSWH24	WSWH–AB1x24	1"	24"	15½"
	WSWH–AB1x24HS	1"	24"	15½"
	WSWH–AB1x30	1"	30"	21½"
	WSWH–AB1x30HS	1"	30"	21½"
	WSWH–AB1x36	1"	36"	27½"
	WSWH–AB1x36HS	1"	36"	27½"
	WSWH–AB1x42	1"	42"	33½"
	WSWH–AB1x42HS	1"	42"	33½"
	WSWH–AB1x48	1"	48"	39½"
	WSWH–AB1x48HS	1"	48"	39½"

WSWH ANCHOR BOLTS | 3

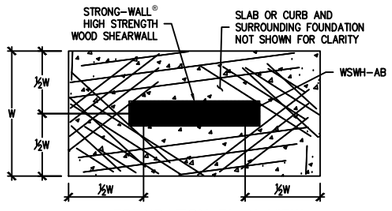


WSWH PANEL MODEL	MODEL NO.	DIAMETER	LENGTH	le
WSWH12, WSWH18 AND WSWH24	WSWH–HSR1x24KT	1"	24"	17½"
	WSWH–HSR1x36KT	1"	36"	29½"

WSWH ANCHOR BOLT EXTENSION | 4



WSWH ANCHOR BOLT TEMPLATES



FOUNDATION PLAN VIEW

WSWH PLAN VIEW
ANCHORAGE LAYOUT

ANCHOR BOLT LAYOUT	
STRONG–WALL® HIGH STRENGTH WOOD SHEARWALL MODEL NO.	DISTANCE FROM CENTER–TO–CENTER OF WSWH–AB, B (in)
WSWH12	8⅛
WSWH18	14
WSWH24	20

NOTES :
1. ANCHORAGE DESIGNS CONFORM TO ACI 318–11 APPENDIX D, ACI 318–14 CHAPTER 17 AND ACI 318–19 CHAPTER 17 WITH NO SUPPLEMENTARY REINFORCEMENT FOR CRACKED OR UNCRACKED CONCRETE AS NOTED.
2. ANCHOR STRENGTH INDICATES REQUIRED GRADE OF WSWH–AB ANCHOR BOLT. STANDARD (ASTM F1554 GRADE 36) OR HIGH STRENGTH (HS) (ASTM A193 GRADE B7).
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, ACI 318–14 SECTION 17.2.3.4.3 AND ACI 318–19 SECTION 17.10.5.3.
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 DESIGNER MAY SPECIFY ALTERNATE EMBEDMENT, FOOTING SIZE OR ANCHOR BOLT.
6. REFER TO 1/WSWH1 FOR d_e.

WSWH ANCHORAGE SOLUTIONS FOR 2500 PSI CONCRETE

DESIGN CRITERIA	CONCRETE CONDITION	ANCHOR STRENGTH	WSWH–AB1 ANCHOR BOLT ASD ALLOWABLE UPLIFT (lbs)	W (in)	de (in)
SEISMIC	CRACKED	STANDARD	16,000	33	11
			17,100	35	12
		HIGH STRENGTH	34,100	52	18
			36,800	55	19
	UNCRACKED	STANDARD	15,700	28	10
			17,100	30	10
		HIGH STRENGTH	33,500	45	15
			36,800	48	16
WIND	CRACKED	STANDARD	6,200	16	6
			11,400	24	8
			17,100	32	11
		HIGH STRENGTH	21,100	36	12
			27,300	42	14
			34,100	48	16
			36,800	51	17
	UNCRACKED	STANDARD	6,400	14	6
			12,500	22	8
			17,100	28	10
		HIGH STRENGTH	22,900	33	11
			26,400	36	12
			34,200	42	14
			36,800	44	15

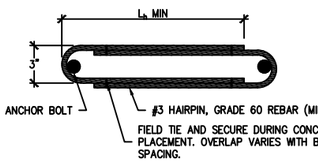
WSWH ANCHORAGE SOLUTIONS FOR 3000 PSI CONCRETE

DESIGN CRITERIA	CONCRETE CONDITION	ANCHOR STRENGTH	WSWH–AB1 ANCHOR BOLT ASD ALLOWABLE UPLIFT (lbs)	W (in)	de (in)
SEISMIC	CRACKED	STANDARD	16,000	31	11
			17,100	33	11
		HIGH STRENGTH	33,900	49	17
			36,800	52	18
	UNCRACKED	STANDARD	16,300	27	9
			17,100	28	10
		HIGH STRENGTH	34,000	43	15
			36,800	46	16
WIND	CRACKED	STANDARD	5,600	14	6
			10,200	21	7
			17,100	30	10
		HIGH STRENGTH	20,000	33	11
			26,500	39	13
			33,600	45	15
			36,800	48	16
	UNCRACKED	STANDARD	6,200	13	6
			12,800	21	7
			17,100	26	9
		HIGH STRENGTH	21,800	30	10
			28,900	36	12
			33,100	39	13
			36,800	42	14

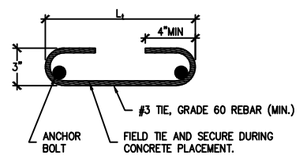
WSWH ANCHORAGE SOLUTIONS FOR 4500 PSI CONCRETE

DESIGN CRITERIA	CONCRETE CONDITION	ANCHOR STRENGTH	WSWH–AB1 ANCHOR BOLT ASD ALLOWABLE UPLIFT (lbs)	W (in)	de (in)
SEISMIC	CRACKED	STANDARD	16,000	27	9
			17,100	29	10
		HIGH STRENGTH	34,700	44	15
			36,800	46	16
	UNCRACKED	STANDARD	15,700	23	8
			17,100	25	9
		HIGH STRENGTH	33,900	38	13
			36,800	40	14
WIND	CRACKED	STANDARD	6,800	14	6
			11,600	20	7
			17,100	26	9
		HIGH STRENGTH	21,400	30	10
			28,400	36	12
			32,400	39	13
			36,800	43	15
	UNCRACKED	STANDARD	6,800	12	6
			12,400	18	6
			17,100	23	8
		HIGH STRENGTH	22,800	27	9
			26,700	30	10
			30,700	33	11
			36,800	37	13

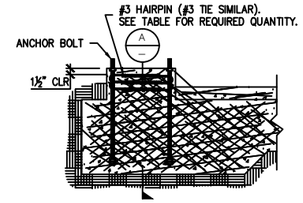
STRONG–WALL® HIGH STRENGTH WOOD SHEARWALL TENSION ANCHORAGE SCHEDULE 2,500, 3,000 AND 4,500 PSI CONCRETE | 2



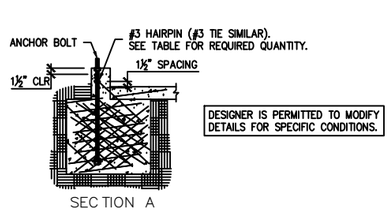
HAIRPIN SHEAR REINFORCEMENT



TIE SHEAR REINFORCEMENT



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



SECTION A

STRONG–WALL® HIGH STRENGTH WOOD SHEARWALL SHEAR ANCHORAGE							
MODEL	SEISMIC3			WIND4			
	Lt OR Lh (in.)	SHEAR REINFORCEMENT	MIN. CURB/STEMWALL WIDTH (in.)	SHEAR REINFORCEMENT	MIN. CURB/STEMWALL WIDTH (in.)	ASD ALLOWABLE SHEAR LOAD, V (lb.)	
						UNCRACKED	CRACKED
WSWH12	10⅛	(1) #3 TIE	6	SEE NOTE 7	6	1,080	770
WSWH18	15	(2) #3 HAIRPINS[5,6]	6	(1) #3 HAIRPIN	6	HAIRPIN REINF. ACHIEVES MAX. ALLOW SHEAR LOAD OF THE WSWH	
WSWH24	19	(2) #3 HAIRPINS[5]	6	(2) #3 HAIRPINS[5]	6		

NOTES :
1. SHEAR ANCHORAGE DESIGNS CONFORM TO ACI 318–19, 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. SEISMIC SHEAR REINFORCEMENT DESIGNS CONFORM TO ACI 318–19, SECTION 17.10.6.3, ACI 318–14, SECTION 17.2.3.5.3
4. WIND INCLUDES SEISMIC DESIGN CATEGORY A AND B.
5. ADDITIONAL TIES MAY BE REQUIRED AT GARAGE CURB OR STEMWALL INSTALLATIONS BELOW ANCHOR REINFORCEMENT PER DESIGNER.
6. USE (1) #3 HAIRPIN FOR WSWH18 WHEN STANDARD STRENGTH ANCHOR IS USED.
7. USE (1) #3 TIE FOR WSWH12 WHEN PANEL DESIGN SHEAR FORCE EXCEEDS TABULATED ANCHORAGE ALLOWABLE SHEAR LOAD.
8. #4 GRADE 40 SHEAR REINFORCEMENT MAY BE SUBSTITUTED FOR WSWH SHEAR ANCHORAGE SOLUTIONS.
9. CONCRETE EDGE DISTANCE FOR ANCHORS MUST COMPLY WITH ACI 318–19 SECTION 17.9.2, ACI 318–14 SECTION 17.7.2 AND ACI 318–11 SECTION D.8.2.
10. THE DESIGNER MAY SPECIFY ALTERNATE SHEAR ANCHORAGE.

STRONG–WALL® WSWH SHEAR ANCHORAGE SCHEDULE AND DETAILS | 5

REVISIONS

No	DATE

HOUSE- 298 MUNICH STREET
SAN FRANCISCO, CA 94112

STRONG-WALL® WSWH
ANCHORAGE DETAILS
ENGINEERED DESIGNS

DRAWN

CHECKED

DATE
06.19.2025

SCALE
AS NOTED

SHEET NUMBER
1 OF 38

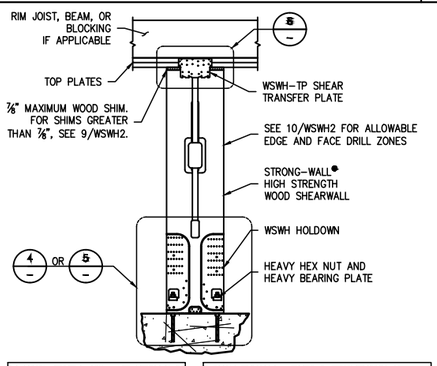
S3.3

STRONG-WALL® HIGH STRENGTH WOOD SHEARWALL MODELS

MODEL NO.	W (in.)	H (in.)	ANCHOR BOLTS QUANTITY	ANCHOR BOLTS DIA. (in.)	TOTAL WALL WEIGHT (lbs.)
WSWH12x7	12	84	2	1	105
WSWH18x7	18	84	2	1	155
WSWH12x8	12	96	2	1	120
WSWH18x8	18	96	2	1	175
WSWH24x8	24	96	2	1	225
WSWH12x9	12	108	2	1	130
WSWH18x9	18	108	2	1	195
WSWH24x9	24	108	2	1	250
WSWH12x10	12	120	2	1	145
WSWH18x10	18	120	2	1	210
WSWH24x10	24	120	2	1	275
WSWH12x12	12	144	2	1	165
WSWH18x12	18	144	2	1	245
WSWH24x12	24	144	2	1	325
WSWH18x14	18	168	2	1	285
WSWH24x14	24	168	2	1	370
WSWH24x16	24	192	2	1	420
WSWH18x20	18	240	2	1	390
WSWH24x20	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 7 4½".
2. ALL PANELS COME WITH PRE-ATTACHED HOLDOWNS, TWO HEAVY HEX NUTS, TWO HEAVY BEARING PLATES, ONE WSWH-TP TOP CONNECTION PLATE WITH REQUIRED FASTENERS AND INSTALLATION INSTRUCTIONS.
3. ALL PANELS ARE 3½" THICK.

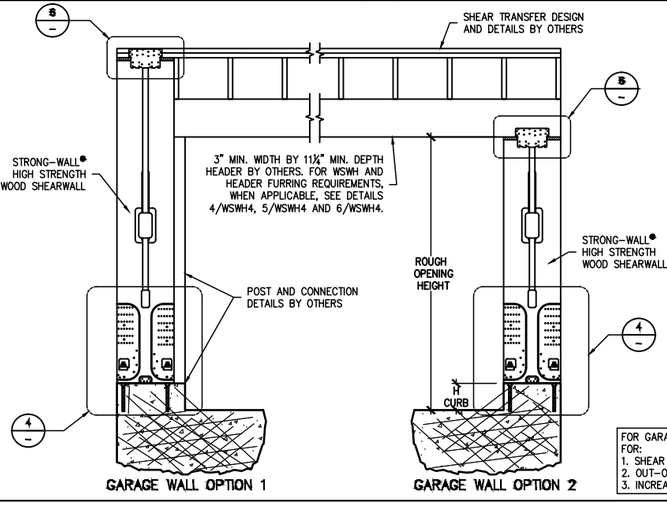
STRONG-WALL® WSWH MODELS | 1



DESIGNER IS PERMITTED TO MODIFY DETAILS FOR SPECIFIC CONDITIONS.

ENSURE CONCRETE IS LEVEL AND SMOOTH BENEATH PANEL. GRIND OR FILL AS NECESSARY.

SINGLE STORY WSWH ON CONCRETE | 2



DESIGNER IS PERMITTED TO MODIFY DETAILS FOR SPECIFIC CONDITIONS.

WHEN WSWH-PS STRAPS OMITTED, ALLOWABLE SHEAR VALUES FOR STANDARD PANEL APPLY.

GARAGE HEADER ROUGH OPENING HEIGHT

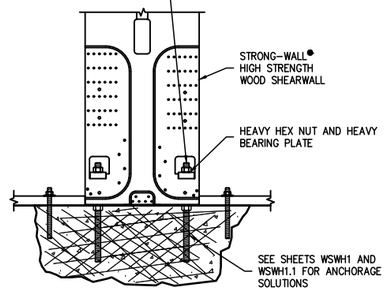
MODEL NO.	TRIMMED PANEL HEIGHT	H CURB	ROUGH OPENING HEIGHT
WSWH12x7 WSWH18x7 WSWH24x7	78"	5½"	6'-11½"
		6"	7'-0"
WSWH12x8 WSWH18x8 WSWH24x8	85½"	0"	7'-1½"
	93¼"	5½"	8'-2¾"
		6"	8'-3¼"

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

FOR GARAGE WALL OPTION 2, DESIGNER SHALL DESIGN AND DETAIL FOR:
1. SHEAR TRANSFER
2. OUT-OF-PLANE LOADING EFFECT
3. INCREASED OVERTURNING AND DRIFT DUE TO ADDITIONAL HEIGHT

ALTERNATE WSWH GARAGE FRONT OPTIONS | 3

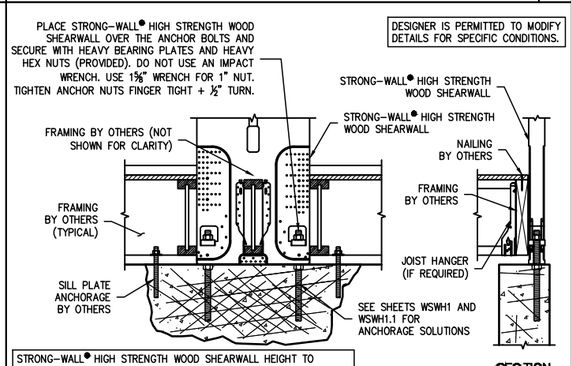
PLACE STRONG-WALL® HIGH STRENGTH WOOD SHEARWALL OVER THE ANCHOR BOLTS AND SECURE WITH HEAVY BEARING PLATES AND HEAVY HEX NUTS (PROVIDED). DO NOT USE AN IMPACT WRENCH. USE 1⅛" WRENCH FOR 1" NUT. TIGHTEN ANCHOR NUTS FINGER TIGHT + ½" TURN.



DESIGNER IS PERMITTED TO MODIFY DETAILS FOR SPECIFIC CONDITIONS.

STANDARD INSTALLATION BASE CONNECTION | 4

PLACE STRONG-WALL® HIGH STRENGTH WOOD SHEARWALL OVER THE ANCHOR BOLTS AND SECURE WITH HEAVY BEARING PLATES AND HEAVY HEX NUTS (PROVIDED). DO NOT USE AN IMPACT WRENCH. USE 1⅛" WRENCH FOR 1" NUT. TIGHTEN ANCHOR NUTS FINGER TIGHT + ½" TURN.

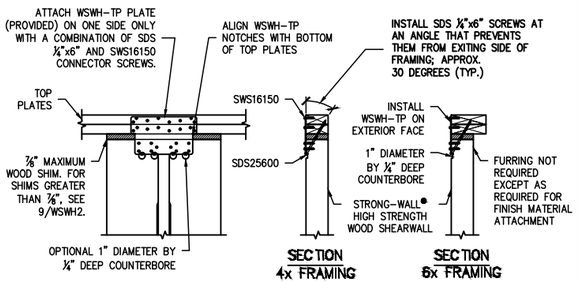


STRONG-WALL® HIGH STRENGTH WOOD SHEARWALL HEIGHT TO INCLUDE THE DEPTH OF THE FLOOR SYSTEM AND SHALL BE INSTALLED DIRECTLY ON THE FOUNDATION. SPECIFY PANEL HEIGHT FROM TOP OF FOUNDATION TO UNDERSIDE OF TOP PLATES OR BEAM.

WOOD FLOOR SYSTEM BASE CONNECTION | 5

WSWH-TP CONNECTION		
MODEL NO.	FASTENER QUANTITY	
	SWS16150	SDS25600
WSWH-TP12	14	2
WSWH-TP18	26	4
WSWH-TP24	46	8

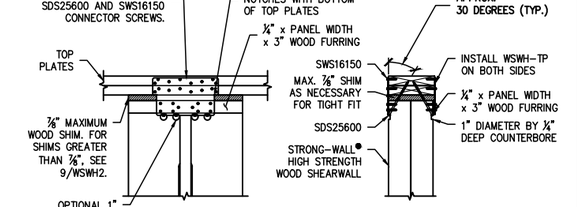
DESIGNER IS PERMITTED TO MODIFY DETAILS FOR SPECIFIC CONDITIONS.



TOP CONNECTION | 6

WSWH-TP CONNECTION		
MODEL NO.	FASTENER QUANTITY	
	SWS16150	SDS25600
WSWH-TP12	28	4
WSWH-TP18	52	8
WSWH-TP24	92	16

DESIGNER IS PERMITTED TO MODIFY DETAILS FOR SPECIFIC CONDITIONS.

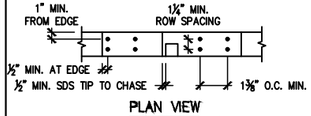


BACK-TO-BACK TOP CONNECTION | 7

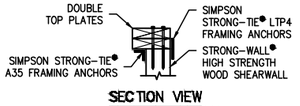
QTY. OF SDS¼"x6" SCREWS REQ'D.	
WSWH12	4
WSWH18	8
WSWH24	16

EDGE DISTANCE FOR SCREWS		
SLOPE	A (in.)	B (in.)
0:12–4:12	2	3
5:12–8:12	1½	4½
9:12–12:12	1½	5½

NOTES :
1. MAINTAIN END DISTANCES TO PREVENT SCREWS FROM PENETRATING THROUGH THE OUTER EDGES.
2. INSTALL SCREWS PERPENDICULAR TO THE TOP PLATE.
3. EDGE DISTANCES ASSUME DOUBLE TOP PLATE.

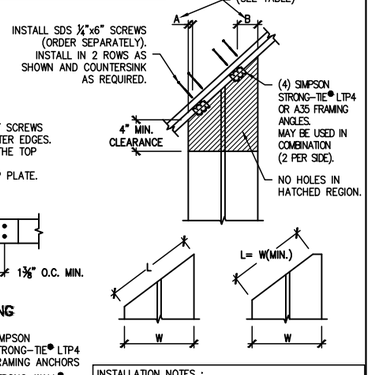


PLAN VIEW
SDS SCREW SPACING



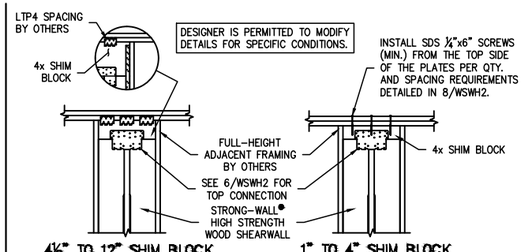
SECTION VIEW
2X6 OR WIDER FRAMING

DESIGNER IS PERMITTED TO MODIFY DETAILS FOR SPECIFIC CONDITIONS.

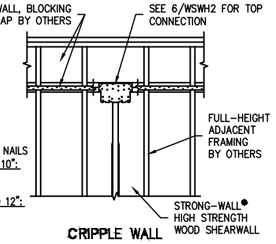


INSTALLATION NOTES :
1. ACTUAL CUT LENGTH (L) MUST BE GREATER THAN OR EQUAL TO PANEL WIDTH (W).
2. THIS DETAIL APPLICABLE FOR SLOPES UP TO 12:12.
3. PANELS TALLER THAN 12' MUST BE DESIGNED FOR THE APPLICATION.

RAKE WALL | 8



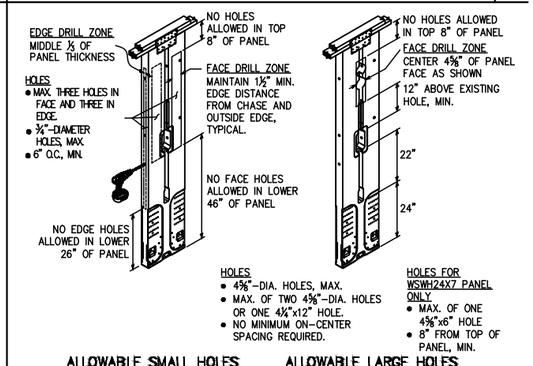
DESIGNER SHALL DESIGN AND DETAIL FOR:
1. SHEAR TRANSFER
2. OUT-OF-PLANE LOADING EFFECT
3. INCREASED OVERTURNING AND DRIFT DUE TO ADDITIONAL HEIGHT



FOR 8" TO 12" BLOCK DEPTHS:
ATTACH SIMPSON STRONG-TIE® CS16 STRAPS AT EDGE OF WSWH PANEL (EACH SIDE) USING 10dx1½" NAILS
SHIM BLOCK HEIGHTS GREATER THAN 8" AND UP TO 10":
- 8 NAILS INTO BLOCK
- 8 NAILS INTO WSWH PANEL

SHIM BLOCK HEIGHTS GREATER THAN 10" AND UP TO 12":
- 10 NAILS INTO BLOCK
- 10 NAILS INTO WSWH PANEL

TOP OF WALL HEIGHT ADJUSTMENTS | 9



TRIM ZONE AND ALLOWABLE HOLES | 10

1. STRONG-WALL® HIGH STRENGTH 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.

NOTES | 11

REVISIONS

No	DATE

HOUSE- 298 MUNICH STREET
SAN FRANCISCO, CA 94112

STRONG-WALL WSWH
FRAMING DETAILS
ENGINEERED DESIGNS

DRAWN

CHECKED

DATE
06.13.2025

SCALE
AS NOTED

SHEET NUMBER
1 OF 38

S3.4