

**PROJECT TEAM**

OWNER:  
Tom & Kim TSO  
8802 SE 37th St.  
Mercer Island WA 98040  
email:

DESIGNER:  
Kesh Design Lines  
Tel: 425.361.7325  
email: kesh@keshdesignlines.com

ENGINEERING:  
As Needed

**PROPERTY DETAILS**

JOB NAME: TSO ADDITION & ADU  
SITE ADDRESS:  
8802 SE 37th ST. MERCER ISLAND WA 98040

LEGAL DISCRPTION:  
MADRONA CREST ADD

ZONING: R-3.4 Single Family(Res Use/Zone)

PARCEL #: 502190-0455

**SITE DATA**

LOT SIZE: 12,100 SF

EXISTING STRUCTURE:  
Main Floor: 1,440 SF  
2nd Floor: 1,180 SF  
TOTAL FINISHED: 2,670 SF

Proposed Rear Addition 248 SF  
2nd Story Addition 651 SF  
Allowable ADU 900 SF >899 SF OK

Allowed 80% of Lot Size: 9,680 SF  
PROPOSED TOTAL DWELLING SQ. FT. 4,290 SF OK

ATTACHED GARAGE: 750 SF (To be Remodeled ADU)  
Open Porch: 50 SF

**IMPERVIOUS SURFACES**

LOT SIZE: 12,100 SF

EXISTING STRUCTURE:  
Exst. House 1,440 SF  
Exst. Attached Garage: 750 SF  
Patio: 400 SF  
Walk Ways & Paths: 693 SF  
Front Drive Way: 1,139 SF  
EXISTING IMPERVIOUS TOTAL: 4,473 SF

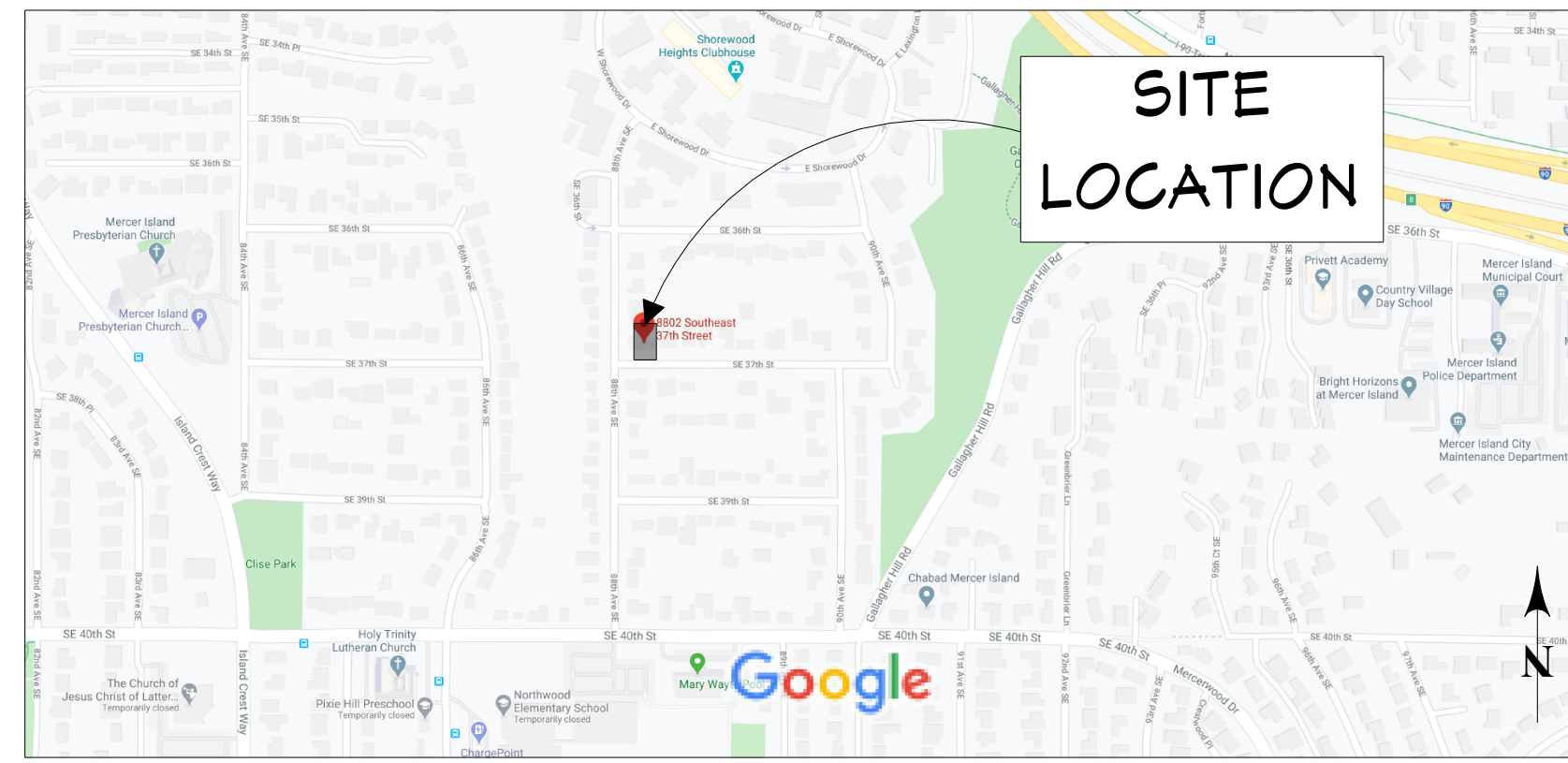
PROPOSED ADDITIONAL:  
Addition: 248 SF

NEW IMPERVIOUS TOTAL: 4,721 SF  
Proposed Total Impervious < Allowable 40%  
(less than 15% Lot Slope) OK

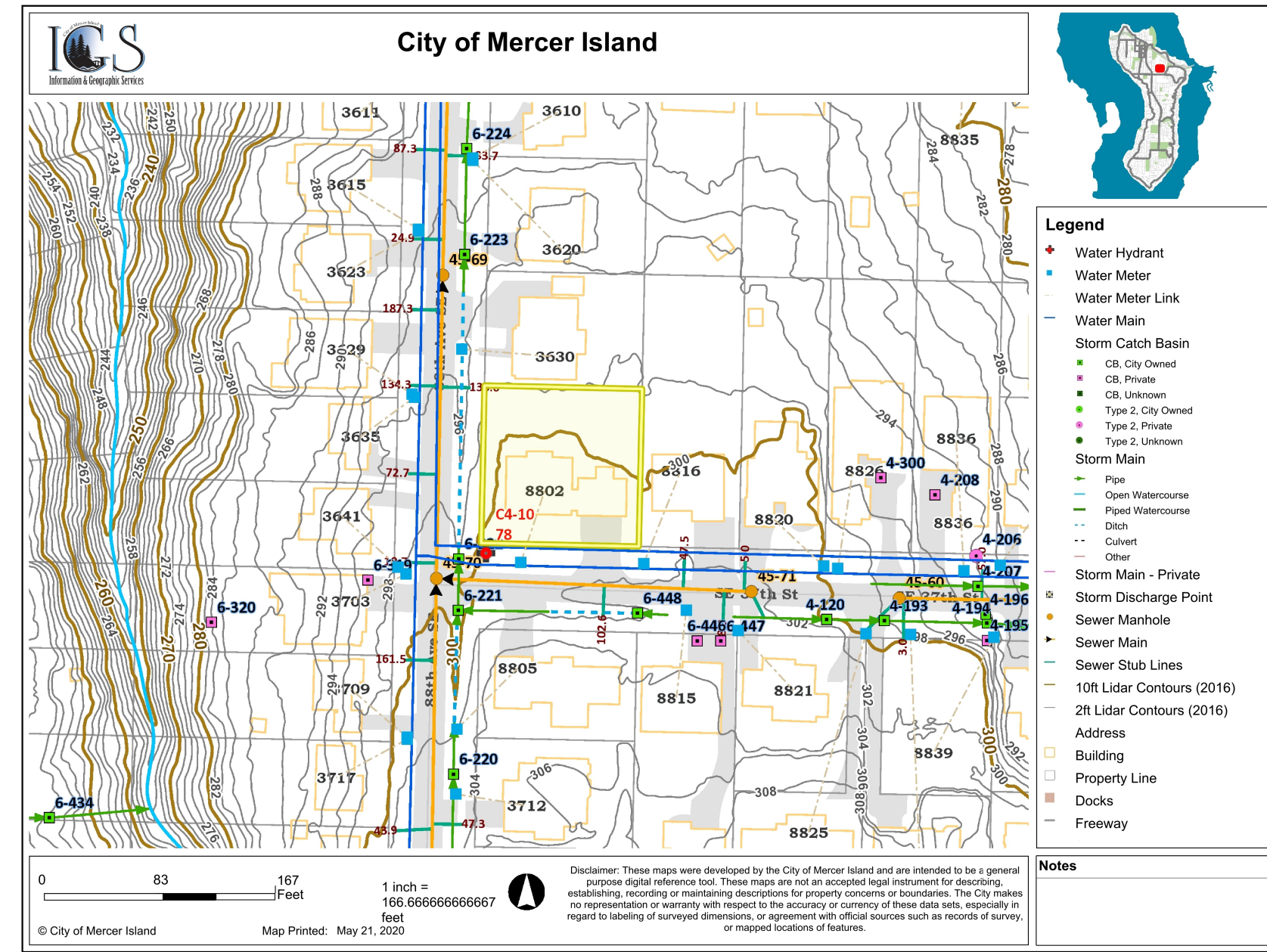
**PARKING & OPEN SPACES**

Open Space 7,546 SF  
Additional ADU Parking Stalls: 2 (Per MICC 19.02.020(G))

**VEGINITY MAP nts**



**TOPO & UTILITIES MAP nts**



**APPLICABLE CODES**

- CITY OF MERCER ISLAND MUNICIPAL CODE
- 2015 INTERNATIONAL BUILDING CODE
- 2015 INTERNATIONAL RESIDENTIAL CODE
- 2015 INTERNATIONAL FIRE CODE
- 2015 INTERNATIONAL MECHANICAL CODE
- 2015 INTERNATIONAL FUEL AND GAS CODE
- 2015 UNIFORM PLUMBING CODE
- 2012 WASHINGTON CITIES ELECTRICAL CODE
- CITY OF MERCER ISLAND ELECTRICAL CODE
- STATE ENVIRONMENTAL POLICY ACT (SEPA)
- WASHINGTON STATE ENERGY CODE

**DESIGN CRITERIA**

- Wind Speed: 110 mph (IBC Figure 1609A)
- Ground Snow Load: 25 psf (Snow drift per ASCE 7-10)
- Rain-on-Snow Surcharge: 5 psf added to flat roofs per (ASCE 7-10)
- Seismic Design Category: D2
- Rainfall: 1"/Hr (UPC Table D101.1)
- Soil Bearing Capacity: 1500 psf (IBC Table 1806.2)

COMPLIANCE PATH PRESCRIPTIVE:  
International Residential Code 2015 (IRC 2015)  
with WA State Amendments

**PROJECT NARATIVE**

Proposed is a 2 story Addition above and to the rear of the existing 750 SF garage.  
One bedroom and One bath on lower level and Master Bed and Bath on upper level - ADU totaling 899 SF.  
Principal dwelling unit will be owner occupied.  
New construction details will follow the existing design of the house including windows, siding and roof pitch.  
2 Additional on site parking will be designated for the ADU  
No trees will be removed or distrubed

**SHEET INDEX**

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- A4 PROPOSED MAIN & UPPER FLOOR
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- A12 SHEARWALL DETAILS
- A13 WINDOW SCHEDULE & ENERGY CALCS.
- D1 DETAILS & NOTES
- D2 DETAILS & NOTES

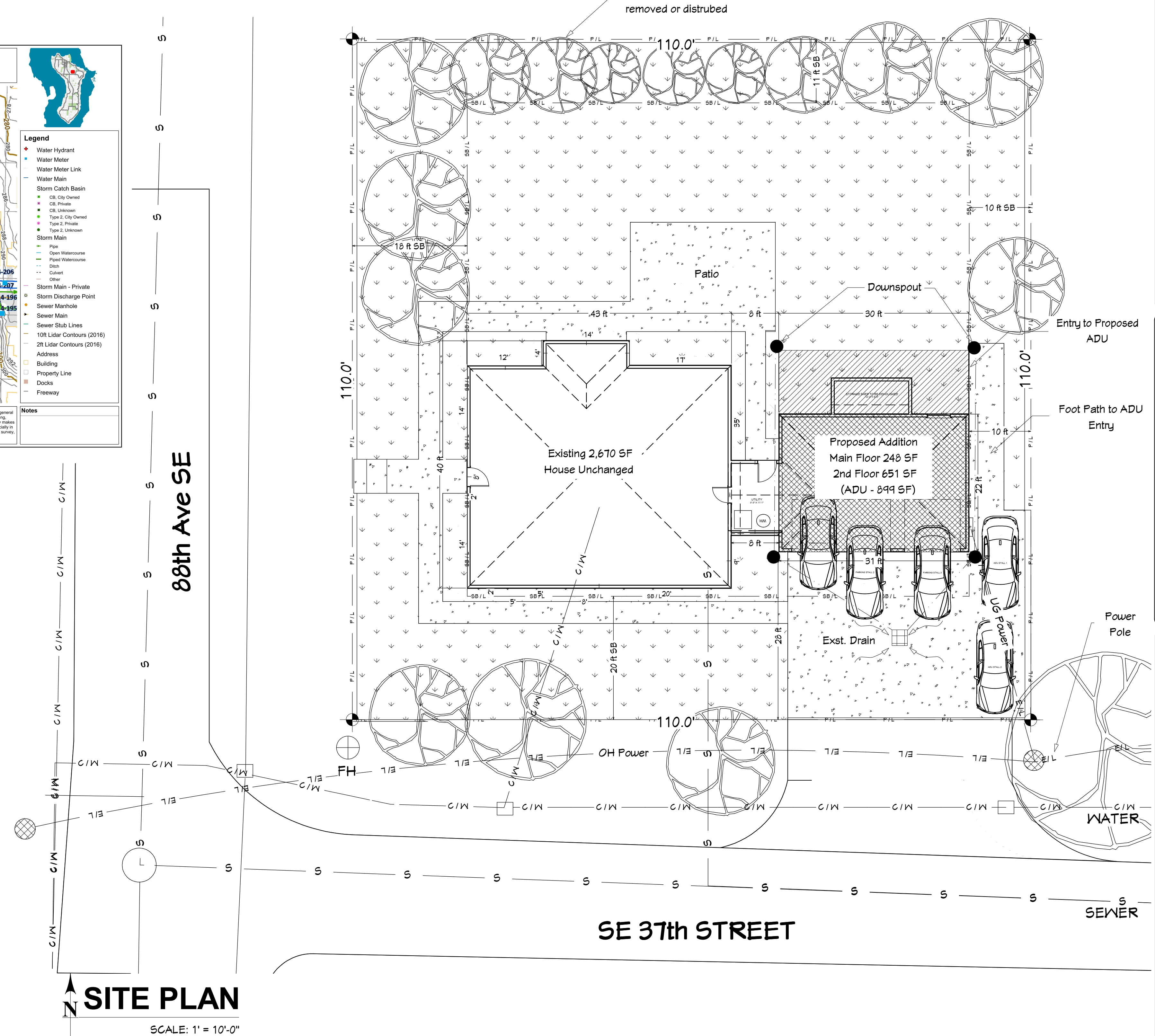
SHEET NUMBER  
**P1**

DATE: 06.15.20  
DRAWN BY: K.C.

**SITE PLAN**  
SCALE: 1" = 10'-0"

**TOM & KIM TSO**  
8802 SE 37th ST.  
MERCER ISLAND WA 98040

Kesh Design Lines  
425 361 7325



**SITE PLAN**  
SCALE: 1" = 10'-0"



COMPLIANCE PATH PRESCRIPTIVE:  
International Residential Code 2015 (IRC 2015)  
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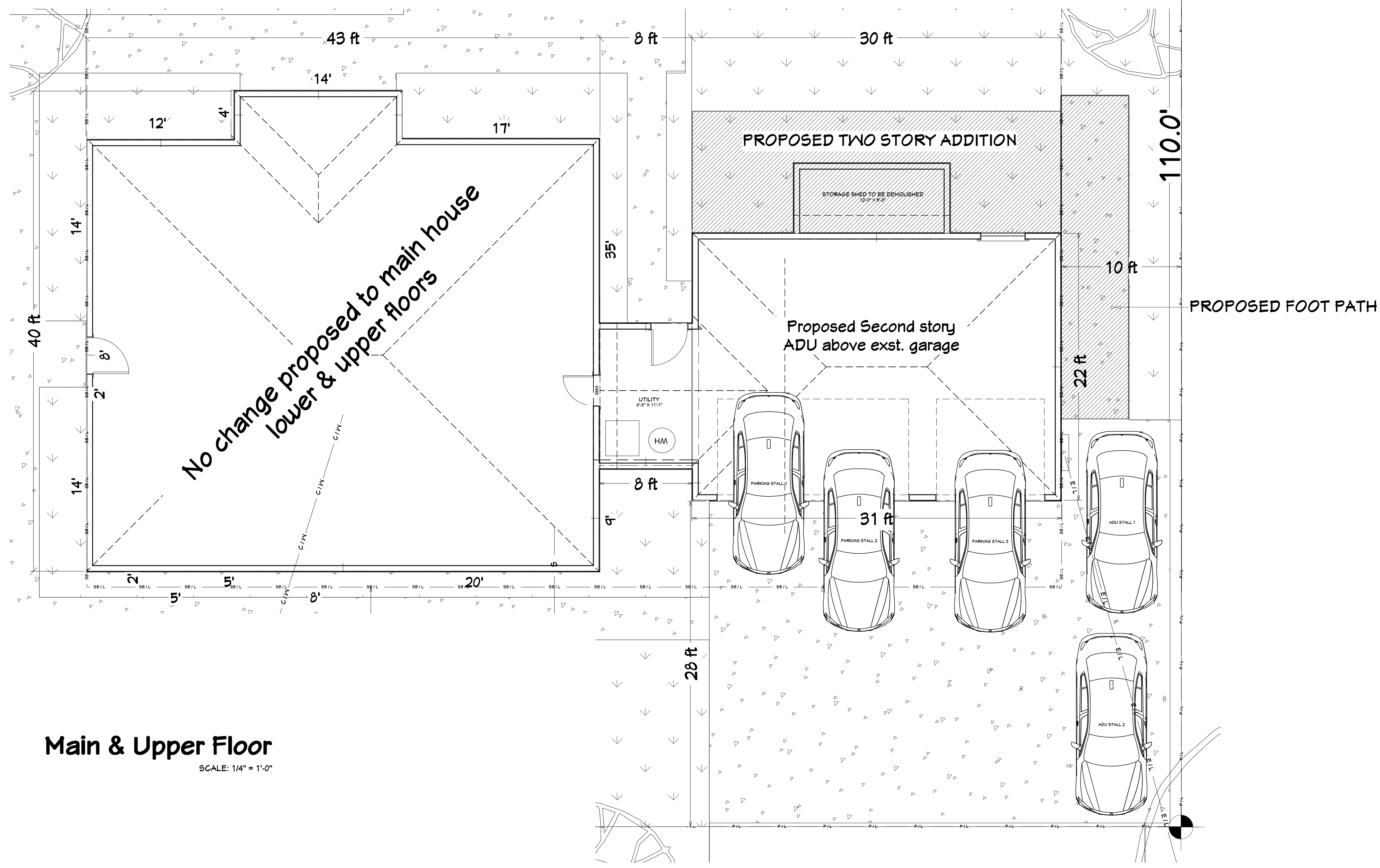
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Revision #:

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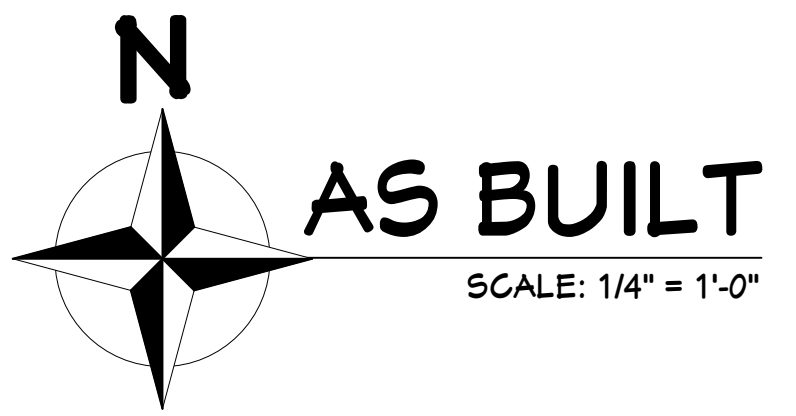
AS BUILT

**TOM & KIM TSO**  
8802 SE 37th ST.  
MERCER ISLAND WA 98040

**KESH DESIGN LINES LLC**  
425 344 9906



**Main & Upper Floor**  
SCALE: 1/4" = 1'-0"



COMPLIANCE PATH PRESCRIPTIVE:  
International Residential Code 2015 (IRC 2015)  
with WA State Amendments

SHEET NUMBER  
**A4**  
Revision #:

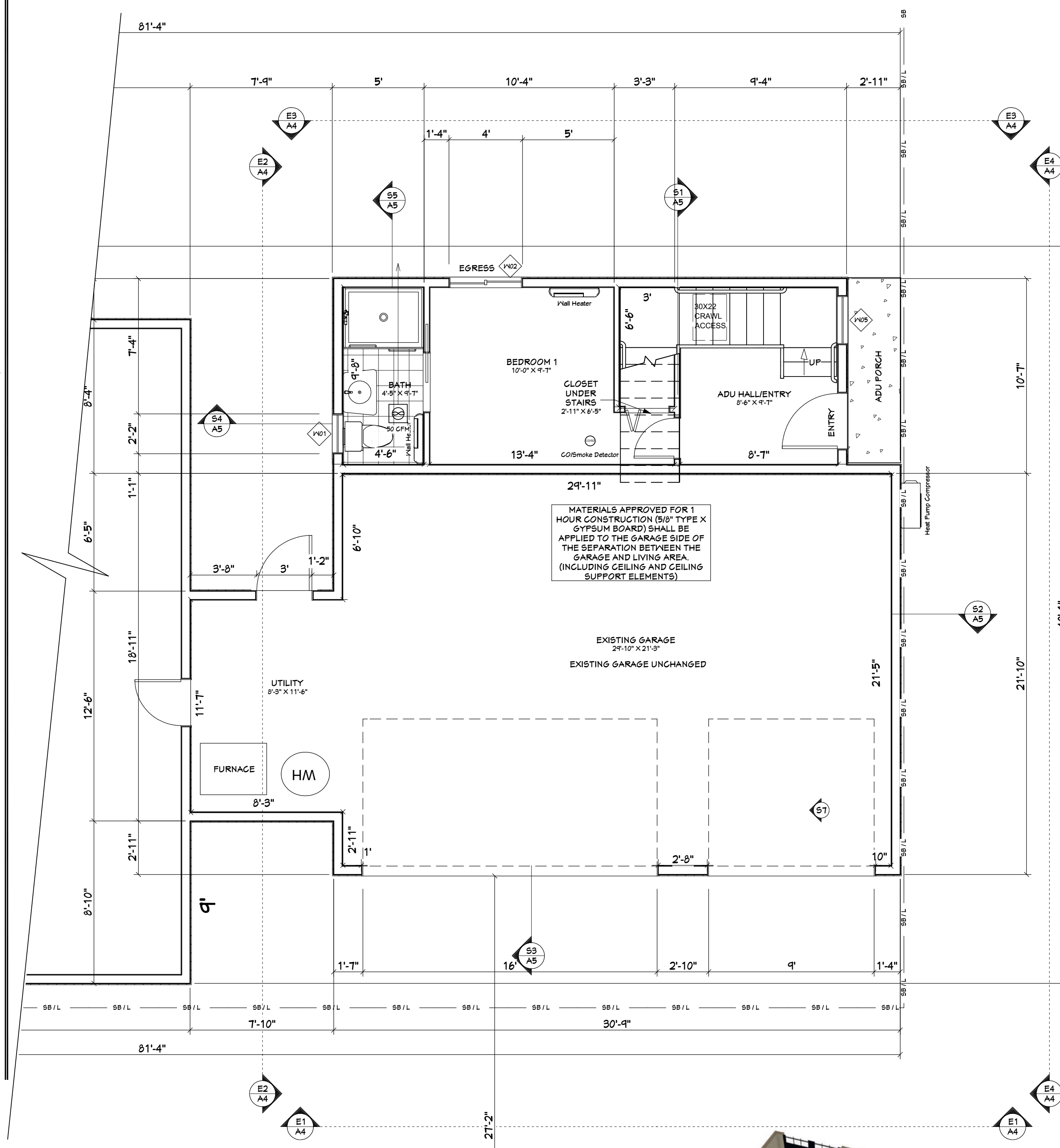
DATE: 06.12.20  
DRAWN BY: K.C.

**PROPOSED  
MAIN & UPPER FLOOR**

**TOM & KIM TSO**  
8902 SE 37th ST.  
MERCER ISLAND WA 98040

**KESH DESIGN LINES LLC**  
425 344 9906

- NOTES**
1. WRITTEN DIMENSIONS TAKE PRECEDENCE OVER SCALED DIMENSIONS
  2. SEE STRUCTURAL PLANS FOR ALL HEADERS AND BEAM SIZES
  3. BOTTOM OF HEADERS TO BE 8'-0" THIS FLOOR UNLESS NOTED OTHERWISE.
  4. ALL EXTERIOR WALLS 2x6 W/ R-21 INSULATION UNO.
  5. ALL FRAME NAILING TO SATISFY CHAPTER 6 IRC. BLOCK ALL PLYWOOD EDGES. ALL EXTERIOR SHEATHING NAILED W/ 10d # 6" O.C. (EDGE) AND 12" O.C. (FIELD), UNO, TYP.
  6. PROVIDE DOUBLE JOISTS OR BLOCKING WHERE PARTITIONS OCCUR ABOVE.
  7. PROVIDE SOLID BLOCKING OVER SUPPORTS.
  8. PLATE HEIGHT 9'-0" THIS FLOOR UNO.
  9. FIRE BLOCKING TO ALL PLUMBING PENETRATIONS
  10. ALL STORAGE AND SPACES UNDER STAIRCASES TO BE FINISHED WITH 5/8" TYPE "X" GYPSUM BOARD.
  11. FINISH ALL CEILINGS WITH 1/2" GYPSUM BOARD
  12. AT GARAGE USE 1/2" TYPE "X" GYP. BD. AT ALL COMMON WALLS, 5/8" TYPE "X" AT ALL CEILINGS AND ALL EXPOSED BEAMS.
  13. PROVIDE 26-GAUGE GALVANIZED SHEET METAL FLASHING ABOVE WINDOWS AND DOORS, (TYP.) LAP BUILDING PAPER OVER.
  14. HOLD SIDING 6" ABV. FINISHED GRADE, TYP.
  15. FASTEN MULTI-LAM 2X BEAMS PER IRC STANDARDS, CHAPTER 6, TABLE R602.3(1), TYPICAL DIRECTION.
  16. ALL VOIDS TO BE FIRE/DRAFT BLOCKED PER IRC SECTION R602.8
  17. INSTALL WATER HEATER PER IRC, CHAPTER 28 AND PER 2015 IMC. THE FLO. OILS, BURNERS, HEATING ELEMENTS, AND SWITCHES SHALL BE A MIN. OF 18" ABOVE THE GARAGE FLOOR PER 2015 IMC.
  18. STRAP THE WATER HEATERS AT POINTS WITH IN THE UPPER 1/3 AND LOWER 1/3 OF ITS VERTICAL DIMENSION. LOWER POINT SHALL BE MINIMUM 4" ABOVE CONTROLS.
  19. FURNACE TO BE PLACED 18" ABV. FLOOR ON 1 HOUR FURNACE PLATFORM W/ (2) 3/4" LAYERS PLYWOOD. THE PILOTS, BURNERS, HEATING ELEMENTS AND SWITCHES SHALL ALSO BE A MIN. OF 18" ABOVE THE GARAGE FLOOR. PROTECT FROM IMPACT PER 2015 IMC.
  20. DOOR BETWEEN HOUSE AND GARAGE TO BE 20 MIN RATED, SOLID CORE, TIGHT FITTING, WITH SELF CLOSURE.
  21. ALL SMOKE DETECTORS TO BE 10 VOLT WITH BATTERY BACKUP, INTERCONNECTED. DENOTES: INSTALL CARBON MONOXIDE ALARMS CMA PER IRC R315 (WA AMENDED).
  22. 36" I.C.C. APPROVED DIRECT VENT FIREPLACE W/ 20" D. FLUSH HEARTH, MIN. 6 SQ. IN. O.S. COMB. AIR. INSTALL DIR. VENT FRPL. PER TERMS OF LISTING AND MFGRS SPECFS. PER SECTION R901.1 IRC.
  23. PROVIDE CONT. HANDRAIL AT STAIRS A MIN. OF 1/2" FROM WALL, REFER TO DETAIL 12 ON SHEET NO. 9.
  24. LIGHTING CONTROLS FOR INTERIOR STAIRWAYS MUST BE PROVIDED AT THE TOP AND BOTTOM OF THE STAIRS.
  25. WALLS W/ GREATER THAN 350 PLF REQUIRE A MINIMUM OF A 3x4 MEMBER AT ABUTTING PANEL EDGES AND BULL PLATES FOR WALLS BETWEEN 350 AND 600 PLF. ANCHOR BOLT SPACING HAS BEEN DECREASED BY 1/2" (USE 2x BULL PLATE) PER IRC R403.16.
  26. TUBS AND SHOWERS:
    - FIRE BLOCKING BETWEEN STUBS.
    - LIMIT SHOWER FLOW TO 175 GPM.
    - LIMIT LAY SINK FLOW TO 120 GPM OR LESS.
    - WATERPROOF WALL TO WITHIN 10" ABOVE DRAIN NLET.
    - VAPOR BARRIER BEHIND GYPSUM BD.
    - ALL GLAZING WITHIN 10" ABOVE DRAIN NLET TO BE SAFETY GLASS.
  27. E DENOTES EGRESSIBLE WINDOW W/ A MIN. OF 5.7 SQ. FT. NET CLEAR OPENING & 44" MAX. ABV. FIN. FLR. MIN. EGRESSIBLE WIDTH IS 20" MIN. HEIGHT IS 24".
  28. S DENOTES SAFETY GLAZING REQUIRED IN THE FOLLOWING AREAS:
    - A. GLAZING LESS THAN 60" ABOVE TUB OR SHOWER
    - B. ALL TUB & SHOWER DOORS & ENCLOSURES EXCEPT GLASS BLOCK GREATER THAN 3" SPHERE UNLESS DECORATIVE GLASS.
    - C. ALL WINDOWS WITHIN 24" OF A DOOR SINK, LESS THAN 60" ABOVE FLOOR.
    - D. FIXED AND SLIDING PANELS OF SLIDING DOORS.
    - E. ALL UNFRAMED SWINGING DOORS.
    - F. GLAZING LESS THAN 3' HORIZ. OF STAIR OR LANDING LESS THAN 60" ABOVE FIN. FLR.
    - G. GLAZING LESS THAN 60" ABOVE STAIRS.
  29. ATTIC ACCESS TO BE A MIN. OF 22"x30" W/INBULL & WEATHER-STRIPPING PER CODE.
  30. WHOLE HOUSE FAN WITH AUTO TIMER AND MANUAL OVERRIDE

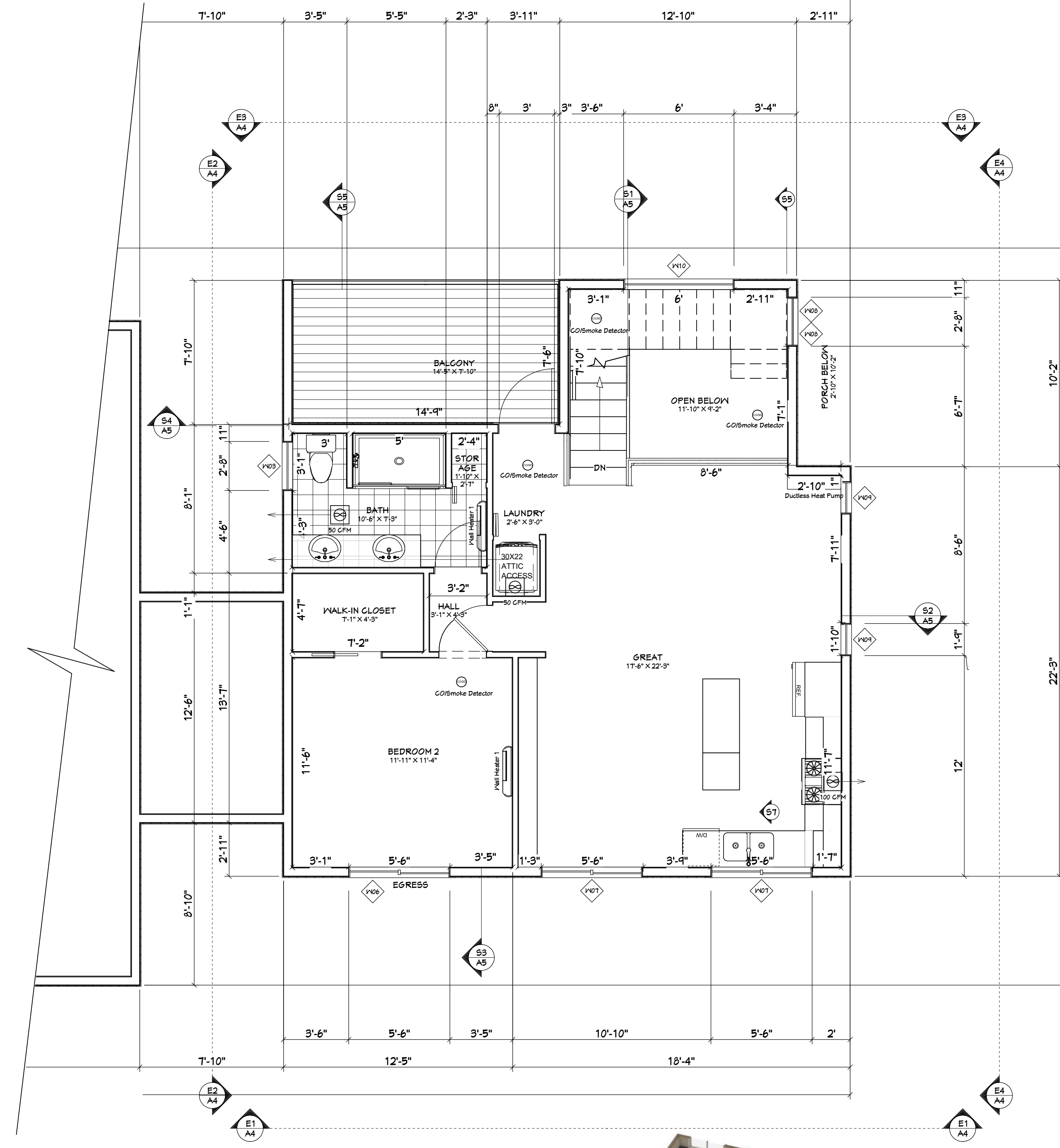


ROOM AREA GARAGE LEVEL				
ROOM NAME	AREA, INTERIOR (SQ. FT.)	CEILING HEIGHT	DIMENSIONS	FLOOR
BATH	42	10'9 1/2"	4'-5" X 9'-7"	1
BEDROOM 1	105	10'9 1/2", 11'0 5/8"	10'-0" X 9'-7"	1
CLOSET UNDER STAIRS	14	11'0 5/8"	2'-11" X 6'-5"	1
ADU HALL/ENTRY	82	10'9 1/2", 11'0 5/8"	8'-6" X 9'-7"	1
TOTALS: LOWER	248			

**MAIN FLOOR PLAN**  
SCALE: 1/4" = 1'-0"



RENDITION - NTS



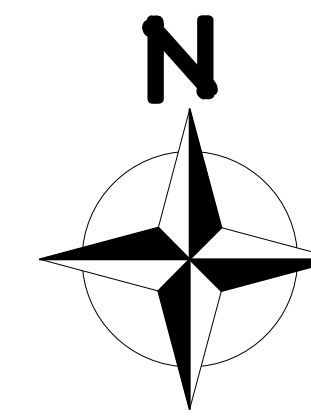
ROOM AREA UPPER LEVEL				
ROOM NAME	AREA, INTERIOR (SQ. FT.)	CEILING HEIGHT	DIMENSIONS	FLOOR
GREAT	342	10'9 1/2"	17'-6" X 22'-3"	2
BEDROOM 2	135	10'9 1/2"	11'-11" X 11'-4"	2
BATH	69	10'9 1/2"	10'-6" X 7'-3"	2
WALK-IN CLOSET	30	10'9 1/2"	7'-1" X 4'-3"	2
LAUNDRY	7	10'9 1/2"	2'-6" X 3'-0"	2
STORAGE	5	10'9 1/2"	1'-10" X 2'-7"	2
HALL	13	10'9 1/2"	3'-1" X 4'-3"	2
TOTALS:	651			

**UPPER FLOOR PLAN**  
SCALE: 1/4" = 1'-0"



RENDITION - NTS

TOTAL PROPOSED ADU 899 SF



**PROPOSED MAIN & UPPER FLOOR PLAN**

SCALE: 1/4" = 1'-0"

COMPLIANCE PATH PRESCRIPTIVE:  
**International Residential Code 2015 (IRC 2015)**  
 with WA State Amendments

SHEET NUMBER  
**A5**  
Revision #:

DATE: 06.12.20  
 DRAWN BY: K.C.

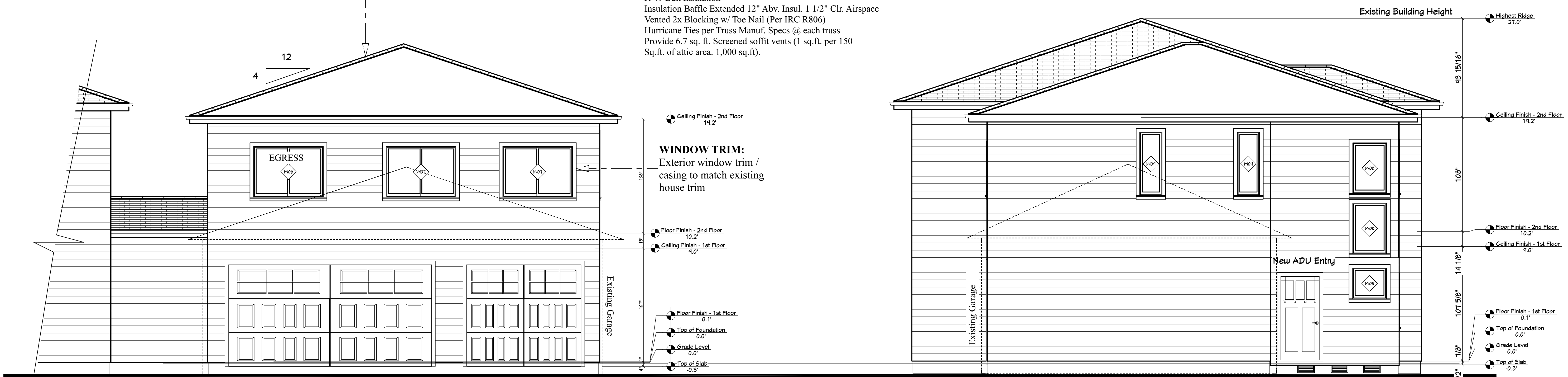
ELEVATIONS

**TOM & KIM TSO**  
 8802 SE 37th ST.  
 MERCER ISLAND WA 98040

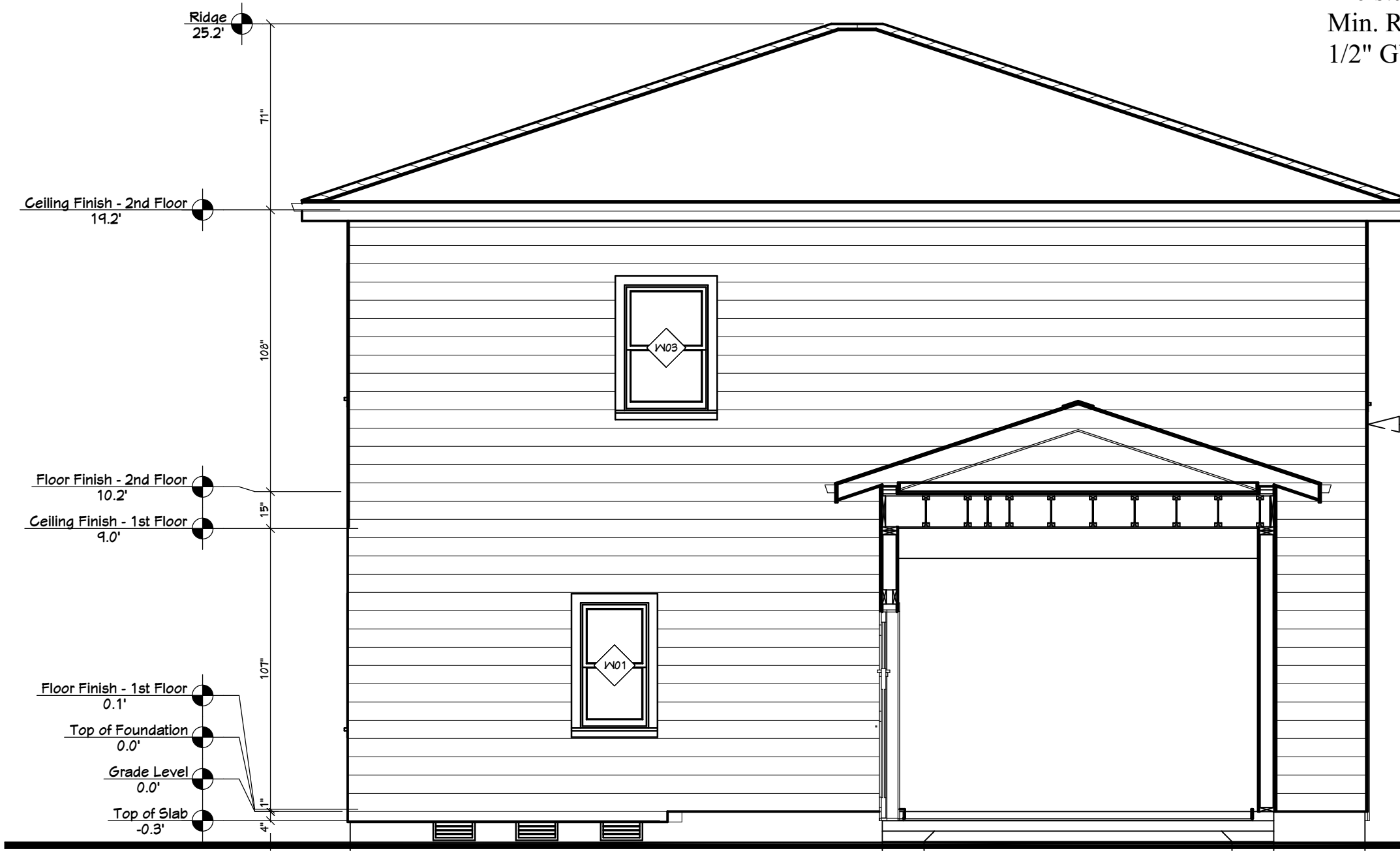
**KESH DESIGN LINES LLC**  
 425 344 9906

**TYP. ROOF CONSTRUCTION:**  
 Comp. Shingles to match existing house roof  
 1/2" CDX Plywood  
 Per Manufactured Trusses @ 24" O.C.  
 R-49 Batt Insulation  
 Insulation Baffle Extended 12" Abv. Insul. 1 1/2" Clr. Airspace  
 Vented 2x Blocking w/ Toe Nail (Per IRC R806)  
 Hurricane Ties per Truss Manuf. Specs @ each truss  
 Provide 6.7 sq. ft. Screened soffit vents (1 sq.ft. per 150 Sq.ft. of attic area. 1,000 sq.ft.)

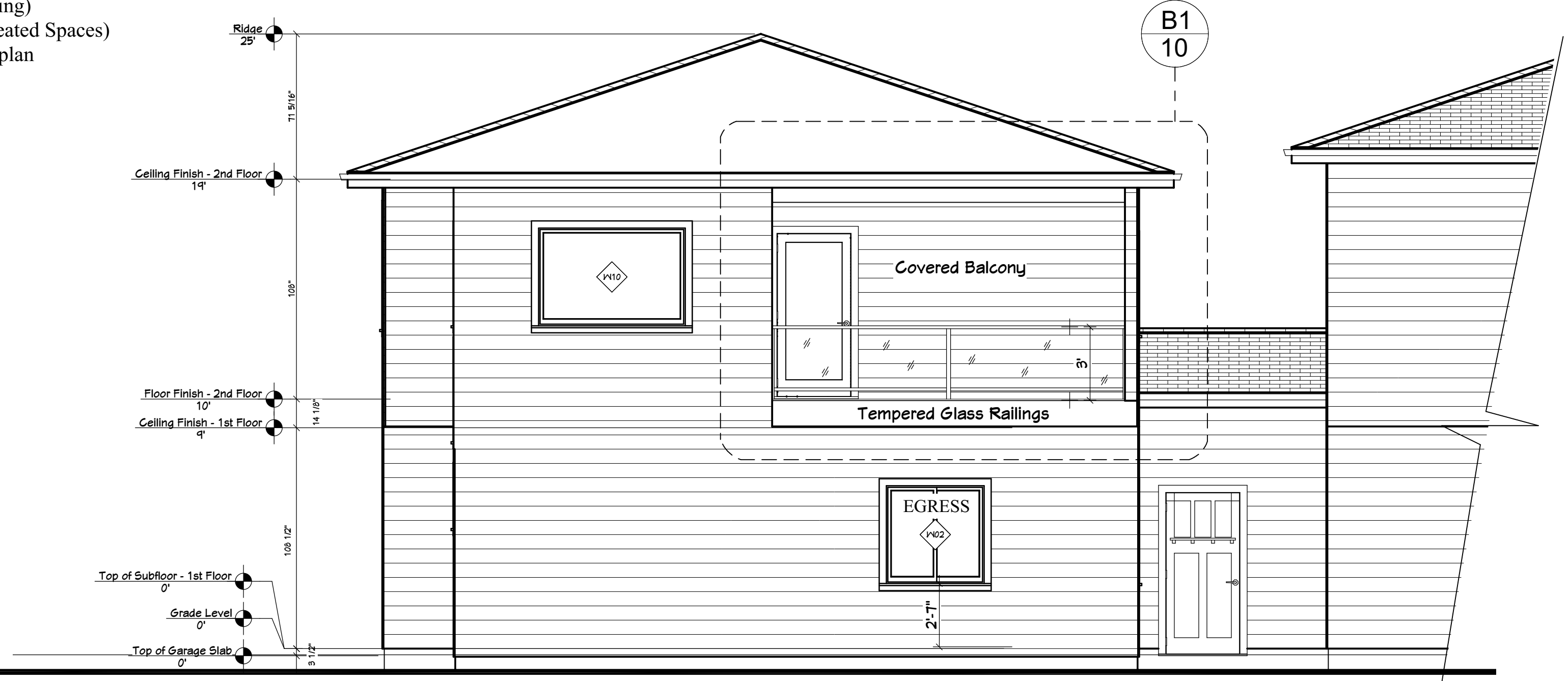
**WINDOW TRIM:**  
 Exterior window trim / casing to match existing house trim



**E1 SOUTH ELEVATION**  
 SCALE: 1/4" = 1'-0"



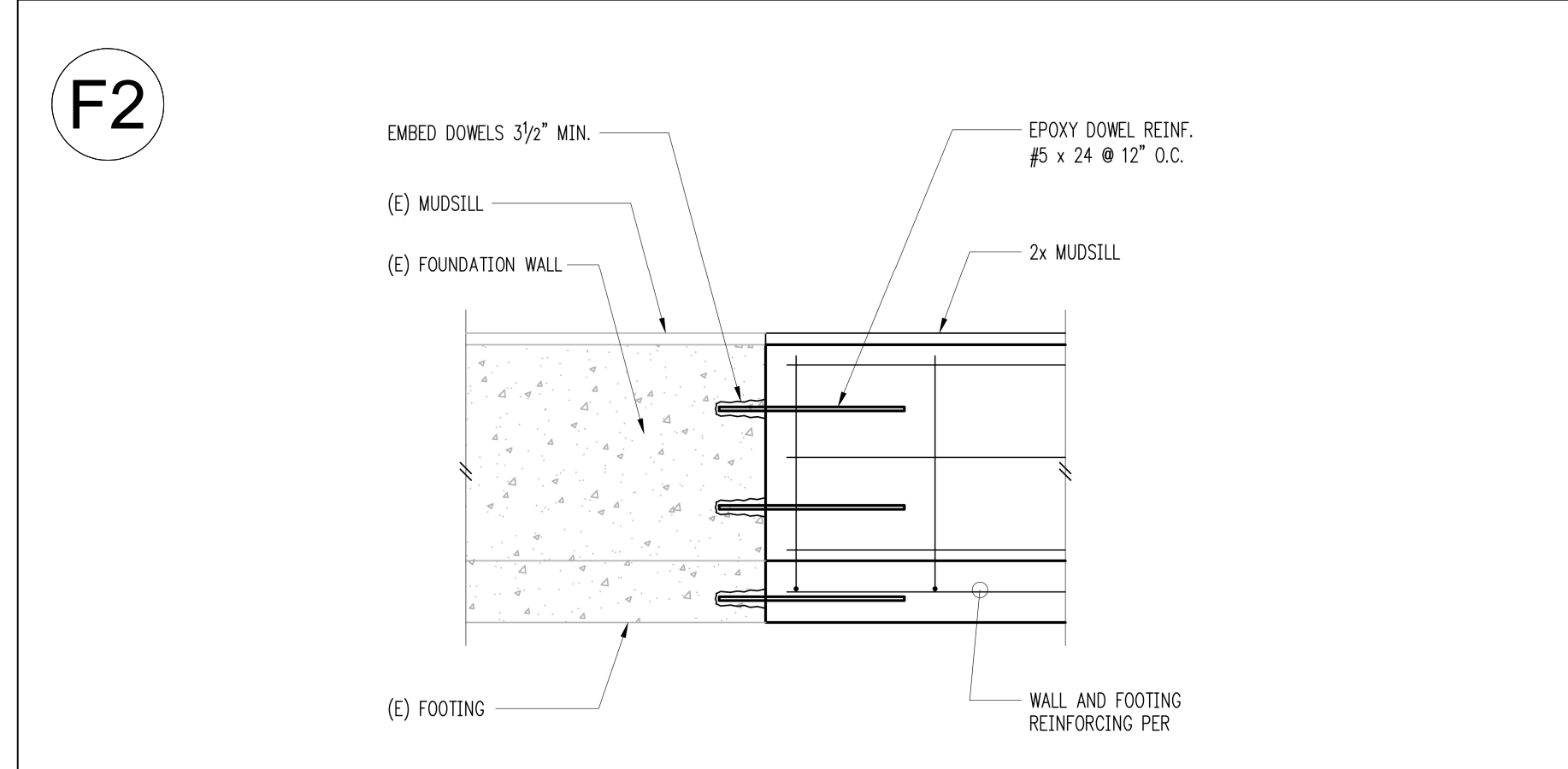
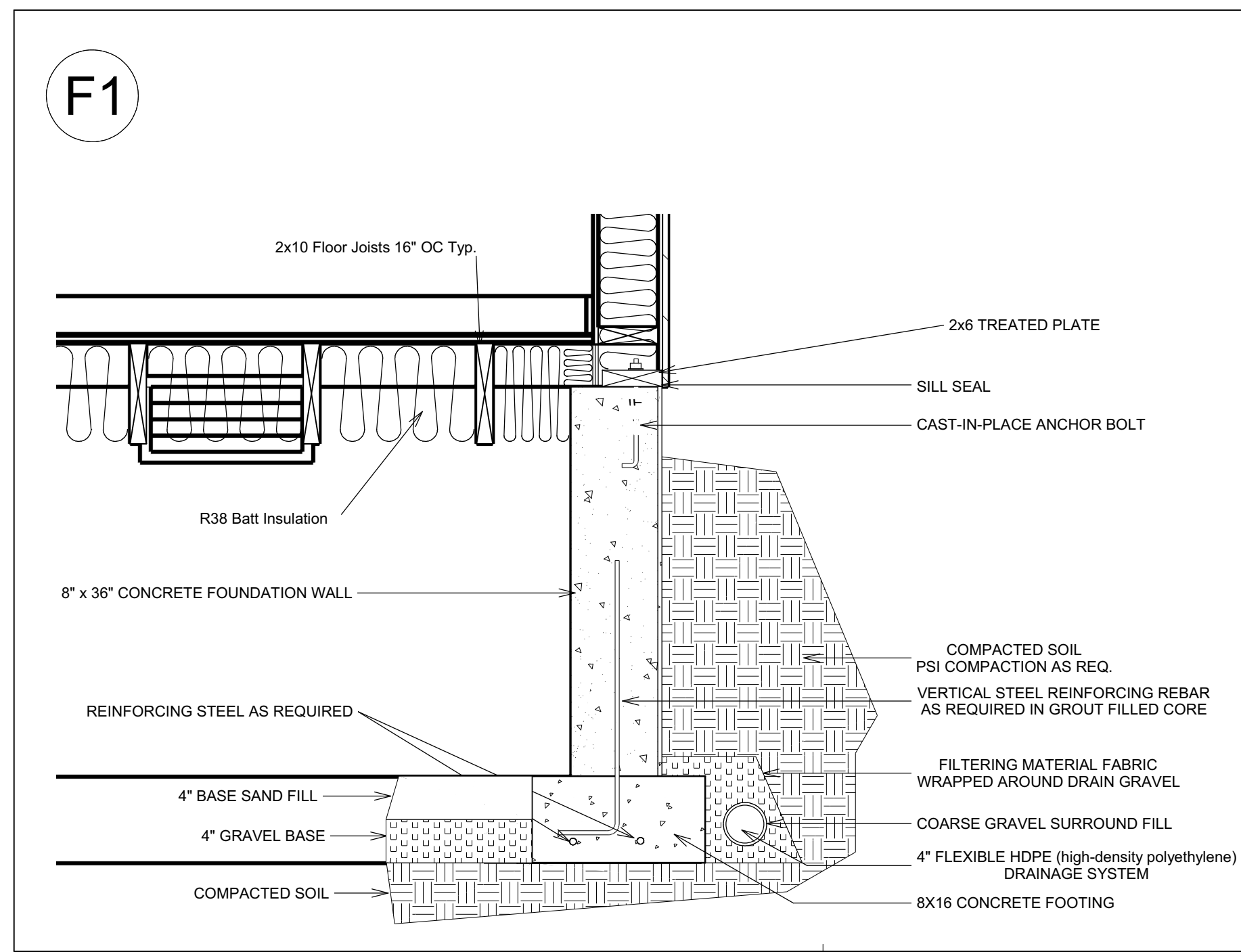
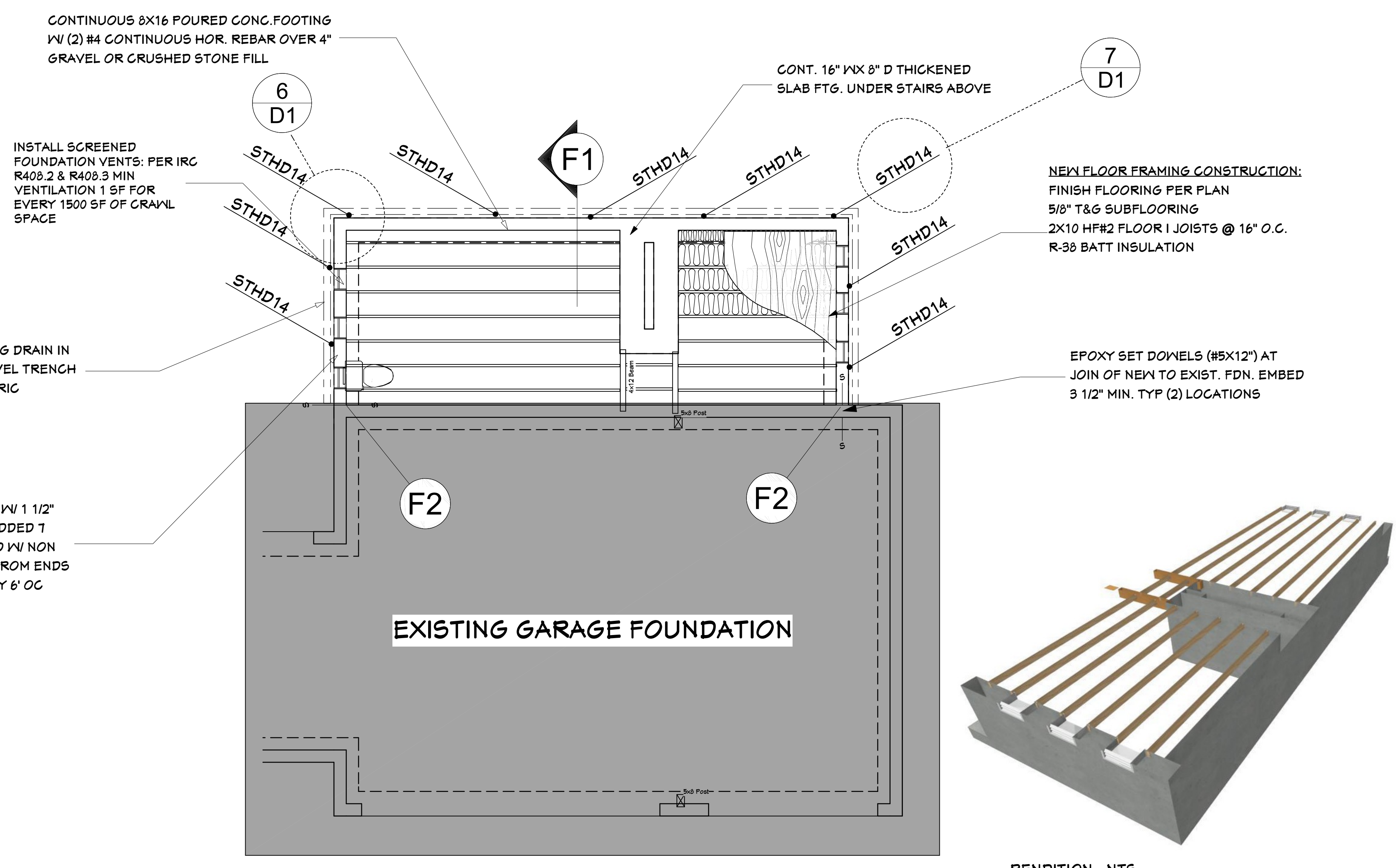
**E3 WEST ELEVATION**  
 SCALE: 1/4" = 1'-0"



**E2 EAST ELEVATION**  
 SCALE: 1/4" = 1'-0"

**E4 NORTH ELEVATION**  
 SCALE: 1/4" = 1'-0"

**TYP. EXTERIOR WALL CONSTRUCTION:**  
 Siding to match existing Wood Lap house siding.  
 5# felt building wrap  
 2x6 studs @ 16 OC (std framing)  
 Min. R-21 Batt Insulation (Heated Spaces)  
 1/2" GWB @ inside face per plan



**FOUNDATION**

UNLESS A SOILS INVESTIGATION BY A QUALIFIED SOILS ENGINEER IS PROVIDED, FOUNDATION DESIGN IS BASED ON AN ASSUMED AVERAGE SOIL BEARING OF 1500 PSF. TWO STORY PERIMETER FOOTINGS SHALL BEAR 1'-6" (MINIMUM) BELOW FINISHED GRADE. ONE STORY PERIMETER FOOTINGS SHALL BEAR 12" MIN. BELOW FINISHED GRADE. SEE DETAILS ON SHEET #2. SEE TABLE R403.1 2015 IRC. ALL FOOTINGS TO BEAR ON FIRM UNDISTURBED EARTH BELOW ORGANIC SURFACE SOILS. BACKFILL TO BE THOROUGHLY COMPACTED. FOUNDATION VENTS SHALL NOT INTERFERE WITH DIRECT LOAD PATH OF COLUMNS. PROVIDE 0.225"x3"x3 THK. STEEL WASHER AT ALL ANCHOR BOLTS PER 2015 IRC, SECTION R602.11.1.

**CONCRETE**

CLASS AND USE	Fc
A - FOOTINGS AND FOUNDATIONS	3000
B - SLABS ON GRADE	3000

- AIR ENTRAINING AGENT (5% TO 1%) TO BE USED IN ALL CONCRETE FLATWORK EXPOSED TO WEATHER.
- POSSOLITH 300 SERIES (4 OZ. PER 100\* OF CEMENT) TO BE USED IN ALL CONCRETE.
- MIX MAY BE DESIGNED IN ACCORDANCE WITH THE PROVISIONS OF SECTION 403 OF THE IRC.
- WATER - CEMENT RATIO PER IRC SECTION 402.
- PER IRC TABLE R402.2 UNDER THE COLUMN FOR MODERATE WEATHERING POTENTIAL, BASEMENT WALLS, FOUNDATION WALLS, EXTERIOR WALLS AND OTHER VERTICAL CONCRETE WORK EXPOSED TO WEATHER AND PORCHES, CARPORT SLABS AND STEPS EXPOSED TO WEATHER AND GARAGE FLOOR SLABS CONC. SHALL BE AIR ENRAINED. TOTAL AIR CONTENT (PERCENT BY VOLUME OF CONCRETE) SHALL NOT BE LESS THAN 5% OR MORE THAN 1%.

**REINFORCING STEEL**

#6M #615 GRADE 40 REINFORCING STEEL DETAILS SHALL BE PREPARED BY AN EXPERIENCED APPROVED DETAILER AND CONFORM TO STANDARD PRACTICE OUTLINED IN ACI REPORT 318.

**CONCRETE COVER OF REINFORCING**  
(PER IRC SECTION 402)

- 3" CONCRETE CAST AGAINST AND PERMANENTLY EXPOSED TO EARTH.
- 1-1/2" CONCRETE EXPOSED TO EARTH OR WEATHER.
- 1-1/2" BEAMS AND COLUMNS NOT EXPOSED TO EARTH OR WEATHER.
- 3/4" SLABS AND WALLS NOT EXPOSED TO EARTH OR WEATHER.

LAP COLUMN VERTICALS. CLASS "A" CONCRETE AND MASONRY COLUMN AND WALL VERTICALS 32 DIAMETERS. LAP ALL OTHER REINFORCING 24 DIAMETERS. SPLICES AT TENSION REGIONS SHALL NOT BE PERMITTED.

**FRAMING**

ALL FRAMING TO COMPLY WITH IRC CHAPTER 6. NAIL SIZES AND SPACING TO CONFORM TO IRC TABLE R602.3(1) & TABLE R603.3(4). ALL WOOD IN CONTACT WITH CONCRETE TO BE PRESSURE TREATED. 6" MIN. CLEARANCE BETWEEN WOOD AND EARTH. 18" MIN. CLEARANCE BETWEEN FLOOR JOISTS AND EARTH. 12" MIN. CLEARANCE BETWEEN FLOOR BEAMS AND EARTH.

**LUMBER STRENGTH (UNITS IN PSI)**

STUDS:	Fb	Fv
DOUG FIR-LARCH #2	900	180
HEM-FIR #1	975	150
JOIST RAFTERS (2X10):	975	150
HEM - FIR #2 (2X12):	975	150
BMS HDRS, LINTELS, GIRDERS (4X10):	900	180
4" NOMINAL DOUG-FIR #1	900	180
6" NOMINAL DOUG-FIR #1	900	180
GLUED LAMINATED TIMBERS:	2400	240
DOUG-FIR LARCH (24F-V3)	2400	240
MICRO-LAM LVL	2950	285

**TABLE R301.5**  
**MINIMUM UNIFORMLY DISTRIBUTED LIVE LOAD:**  
(IN POUNDS PER SQUARE FOOT)

USE	LIVE LOAD
ATTICS WITH STORAGE <sup>1</sup>	20
ATTICS WITHOUT STORAGE <sup>1</sup>	10
DECKS <sup>2</sup>	40
EXTERIOR BALCONIES	60
FIRE ESCAPES	40
GUARDRAILS AND HANDRAILS <sup>3</sup>	200
GUARDRAILS IN-FILL COMPONENTS <sup>3</sup>	50
PASSENGERS VEHICLE GARAGES <sup>4</sup>	80
ROOMS OTHER THAN SLEEPING ROOMS	40
SLEEPING ROOMS	30
STAIRS	40 <sup>5</sup>

- FOR SI: 1 POUND PER SQUARE FOOT = 0.0157KN/m. SQUARE INCH=645mm, 1 POUND = 4.45N
- A. ELEVATED GARAGE FLOORS SHALL BE CAPABLE OF SUPPORTING A 2,000-POUND LOAD APPLIED OVER A 20 SQUARE INCH AREA.
- B. NO STORAGE WITH ROOF SLOPE NOT OVER 3 UNITS IN 12 UNITS.
- C. INDIVIDUAL STAIR TREADS SHALL BE DESIGNED FOR THE UNIFORMLY DISTRIBUTED LIVE LOAD OR A 300 POUND CONCENTRATED LOAD ACTING OVER AN AREA OF 4 SQUARE INCHES, WHICHEVER PRODUCES THE GREATER STRESSES.
- D. A SINGLE CONCENTRATED LOAD APPLIED IN ANY DIRECTION AT ANY POINT ALONG THE TOP.
- E. SEE SECTION R502.2 FOR DECKS ATTACHED TO EXTERIOR WALLS.
- F. GUARD IN-FILL COMPONENTS (ALL THOSE EXCEPT THE HANDRAIL), BALUSTERS AND PANEL FILLERS SHALL BE DESIGNED TO WITHSTAND A HORIZONTALLY APPLIED NORMAL LOAD OF 50 POUNDS ON AN AREA EQUAL TO 1 SQUARE FOOT. THIS LOAD NEED NOT BE ASSUMED TO ACT CONCURRENTLY WITH ANY OTHER LIVE LOAD REQUIREMENT.

BOLT HEADS AND NUTS BEARING AGAINST WOOD TO BE PROVIDED WITH FLAT CUT WASHERS. WOOD BEARING ON OR INSTALLED WITHIN 1" OF MASONRY OR CONCRETE TO BE TREATED WITH AN APPROVED PRESERVATIVE. SOLID BLOCKING OF NOT LESS THAN 2 X THICKNESS SHALL BE PROVIDED AT ENDS AND AT ALL SUPPORT OF JOISTS AND RAFTERS. BETWEEN SUPPORTS PROVIDE BLOCKING OR APPROVED BRIDGING AT 8'-0" O.C. FOR FLOOR JOISTS, 10'-0" FOR ROOF JOISTS. TYPICAL SILL BOLTS TO BE 1/2" DIAMETER AT 4'-0" O.C. OR PER SHEAR WALL SCHEDULE # MINIMUM 1" EMBEDMENT. ALL METAL FRAMING ANCHORS AND HANGERS SHOWN ON DRAWINGS SHALL BE "STRONG TIE CONNECTORS" AS MANUFACTURED BY SIMPSON COMPANY OR APPROVED EQUAL.

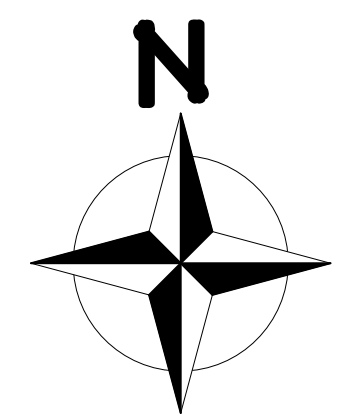
**PLYWOOD**

PLYWOOD WALL AND ROOF SHEATHING SHALL BE 1/2" CDX OR 1/4" O.S.B. EXTERIOR GRADE, UNLESS OTHERWISE SPECIFIED. MINIMUM NAILING SHALL BE 8 PENNY @ 6" O.C. @ PANEL EDGES AND 12" O.C. IN FIELD. SPAN INDEX SHALL BE 24/0. PLYWOOD FLOOR SHEATHING SHALL BE 3/4" CDX T&G (OR EQUAL), UNLESS OTHERWISE SPECIFIED. MINIMUM NAILING SHALL BE 10 PENNY AT 6" O.C. @ PANEL EDGES AND 10" O.C. IN FIELD SPAN INDEX SHALL BE 40/20. STAGGER END LAPS AT ROOF AND FLOOR SHEATHING. ALL EDGES OF PLYWOOD IN FLOOR, ROOF AND WALLS SHALL BE SUPPORTED. PLYWOOD EDGES AT FLOOR AND ROOF SHALL BE SUPPORTED AT EDGES WITH CLIPS, BLOCKING OR OTHER APPROVED METHODS. PLYWOOD EDGES AT WALLS SHALL BE SUPPORTED BY FRAMING MEMBERS OR BLOCKING. O.S.B SHEATHING PRODUCTS OF EQUIVALENT SPAN RATINGS SHALL BE ALLOWED.

**STRUCTURAL GLUED-LAMINATED LUMBER**

SHALL BE DOUGLAS FIR FABRICATED TO THE REQUIREMENTS OF U.S. PRODUCT STANDARD PS 56. LUMBER SHALL BE OF SUCH GRADE TO PROVIDE NORMAL WORKING STRESS VALUES OF 2400 PSI IN BENDING; 1100 PSI IN TENSION; 1600 PSI IN COMPRESSION PARALLEL TO GRAIN; 560 PSI IN COMPRESSION PERPENDICULAR TO GRAIN AND 165 PSI HORIZONTAL SHEAR (COMBINATION 24F-V3). LAMINATED MEMBERS TO BE AITC CERTIFIED. USE WATERPROOF GLUE.

**NOTES:**  
ALL CONCRETE FOOTING & FOUNDATION CONSTRUCTION PRESCRIPTIVE PATH USED.  
REFERENCES TO CHAPTER 4 FOUNDATIONS 2015 IRC CODE WITH AMENDMENTS 2015 WA RESIDENTIAL CODE



**FOUNDATION and 1st FLOOR FRAMING PLAN**

SCALE: 1/4" = 1'-0"

COMPLIANCE PATH PRESCRIPTIVE:  
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 with WA State Amendments

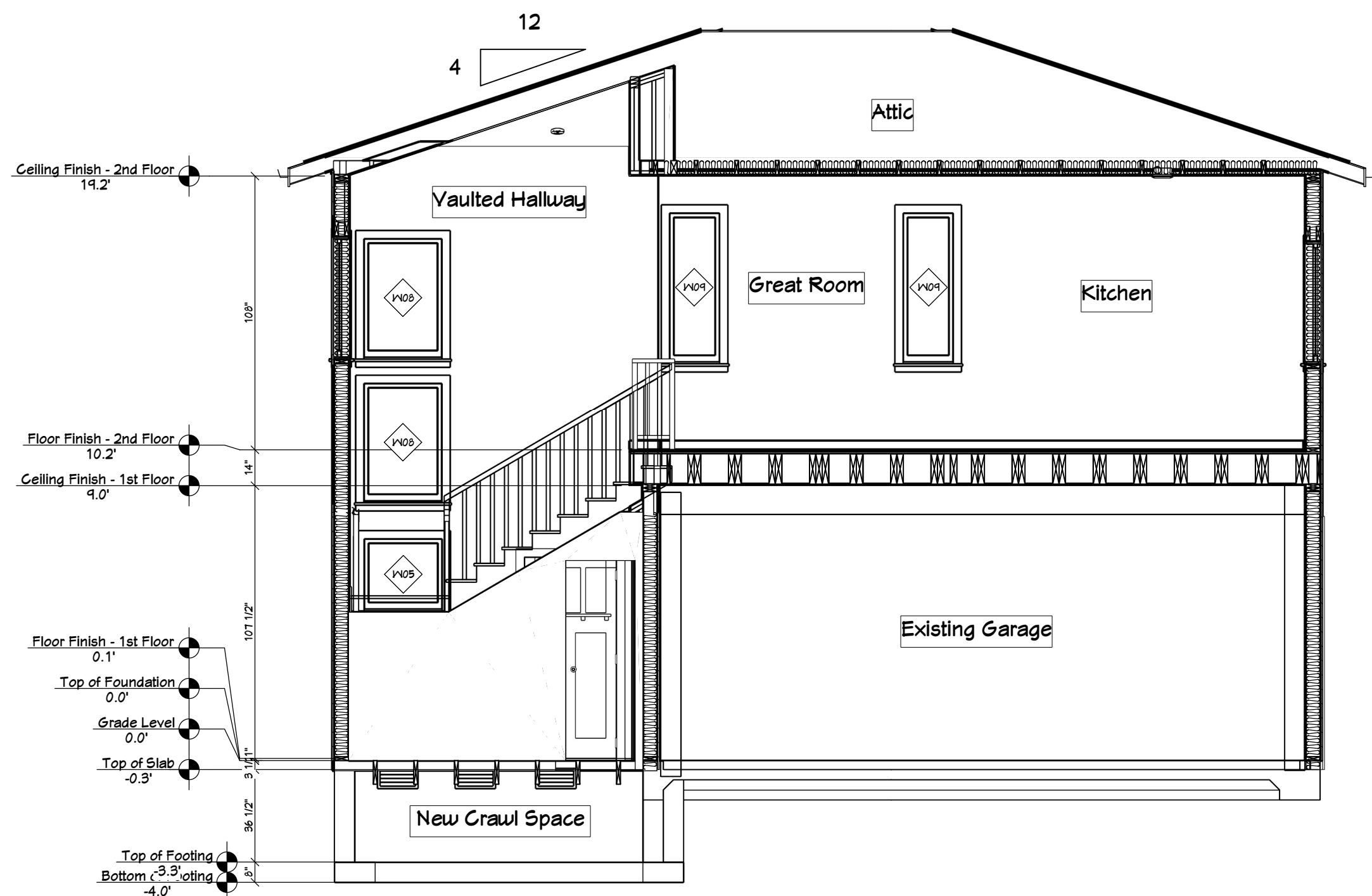
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**A7**  
Revision #:

DATE: 06.12.20  
 DRAWN BY: K.C.

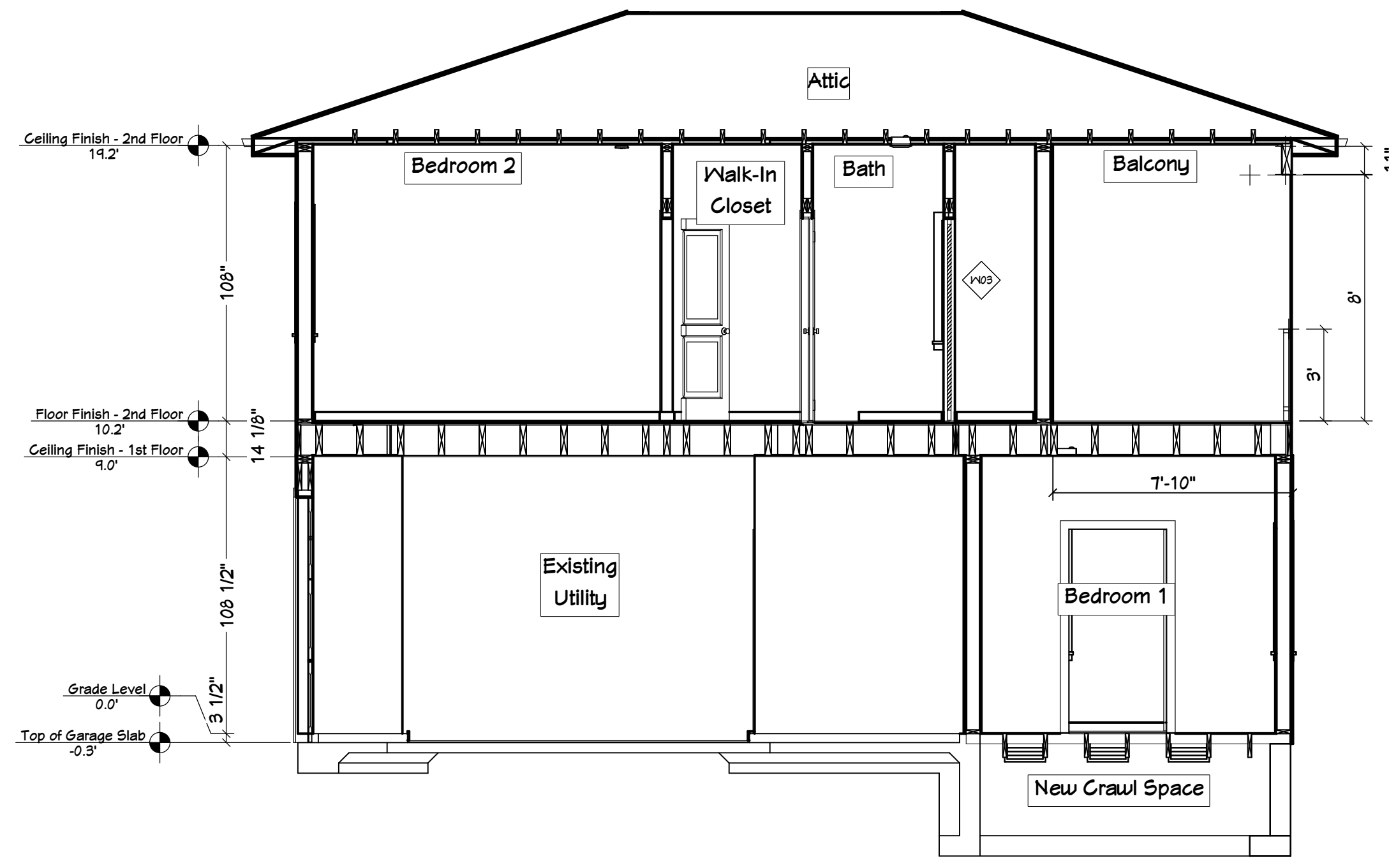
SECTION

**TOM & KIM TSO**  
 8802 SE 37th ST.  
 MERCER ISLAND WA 98040

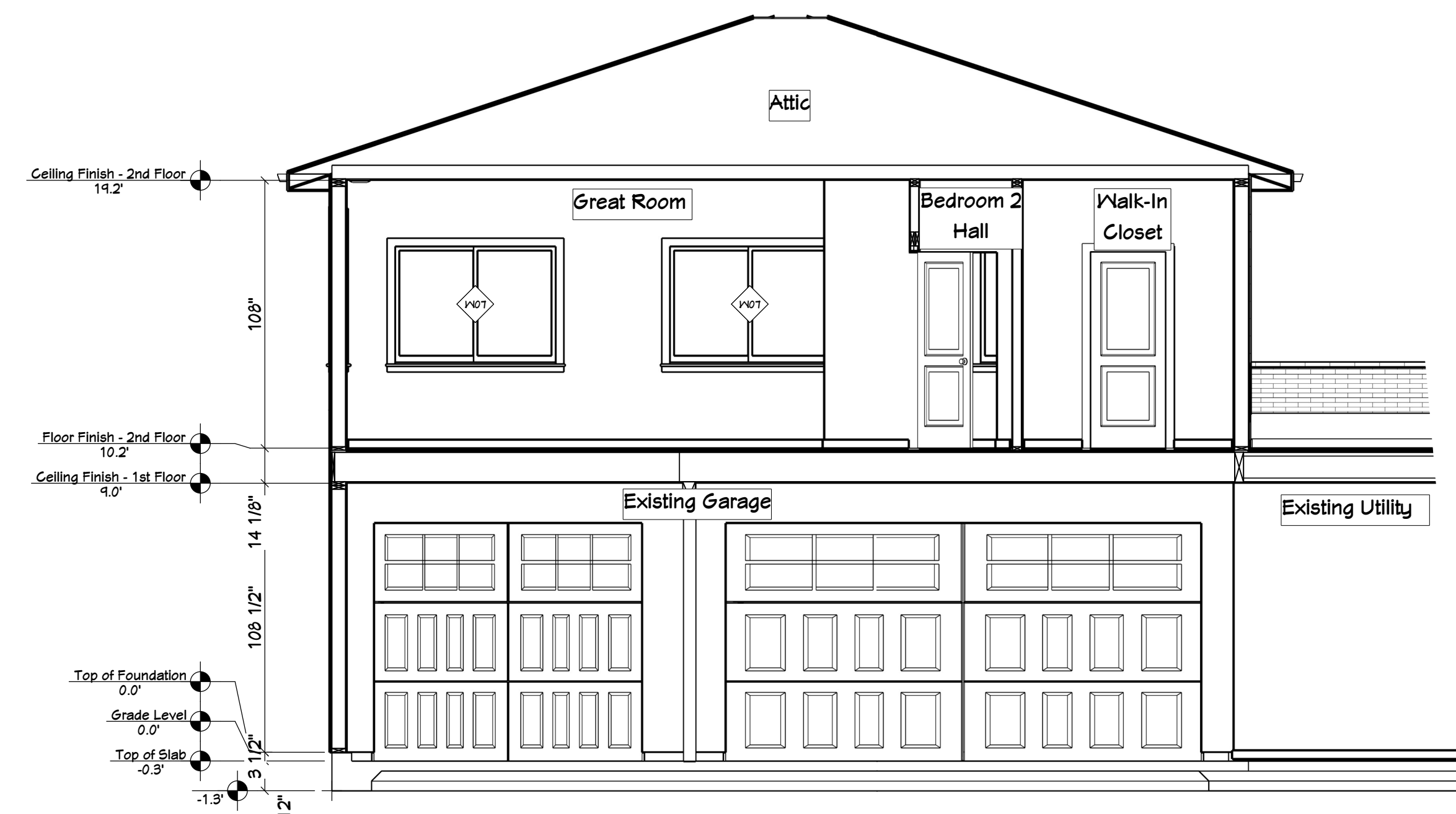
**KESH DESIGN LINES LLC**  
 425 344 9906



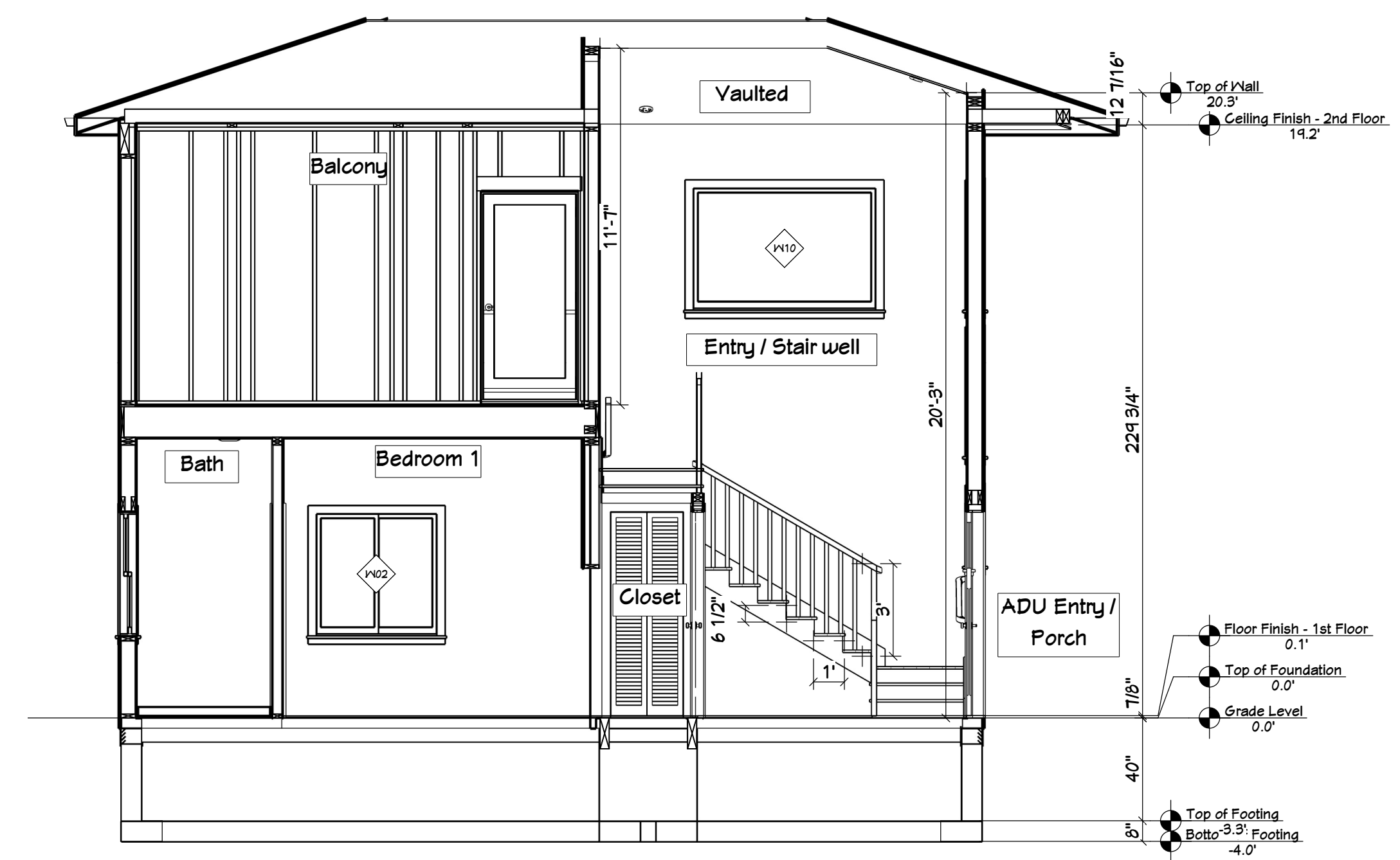
**S1 SECTION**  
 SCALE: 1/4" = 1'-0"



**S3 SECTION**  
 SCALE: 1/4" = 1'-0"



**S2 SECTION**  
 SCALE: 1/4" = 1'-0"



**S4 SECTION**  
 SCALE: 1/4" = 1'-0"



**TYP. ROOF CONSTRUCTION:**

Comp. Shingles to match existing house roof  
1/2" CDX Plywood  
Per Manufactured Trusses @ 24" O.C.  
R-49 Batt Insulation  
Insulation Baffle Extended 12" Abv. Insul. 1 1/2" Clr. Airspace  
Vented 2x Blocking w/ Toe Nail (Per IRC R806)  
Hurricane Ties per Truss Manuf. Specs @ each truss  
Provide Screened soffit vents 1 sq.ft. per 150 Sq.ft. of attic area.( sq.ft).

**UPPER FLOOR CEILING ASSEMBLY:**

2x6 Ceiling joists per plan  
Min. R-49 Batt Insulation  
1/2" GWB

**TYP. EXTERIOR WALL CONSTRUCTION:**

Siding to match existing Wood Lap house siding.  
5# felt building wrap  
2x6 studs @ 16 OC (std framing)  
Min. R-21 Batt Insulation (Heated Spaces)  
1/2" GWB @ inside face per plan

**UPPER FLOOR ASSEMBLY:**

2x12 Floor Joists @ 24" O.C. per plan  
5/8" T&G Plywood subfloor  
**1HR U311 STC 50 - CEILING ASSEMBLY**  
U311: Resilient furring channels attached 24" o.c. horizontally to one side of 2x4 wood studs 16" or 24" o.c. with 1-1/4" type W screws. 1/2" x 3" gypsum board filler strips attached to floor and ceiling plates with 1-1/4" type W screws 3'-0" o.c. 5/8" (15.9 mm) Fire-Shield C Gypsum Board applied horizontally to channel with 1" type S screws 12" o.c. on all edges and intermediate channels and attached to top and bottom plates with 1-7/8" type S screws 12" o.c. Vertical butt joints between studs back-blocked with 20" long piece of resilient channel. 5/8" (15.9 mm) Fire-Shield C Gypsum Board applied horizontally on opposite side directly to wood studs with 1-1/4" type W screws spaced 12" o.c. Horizontal joints in line, vertical joints staggered each side. Mineral wool insulation 3" thick friction fit between studs.

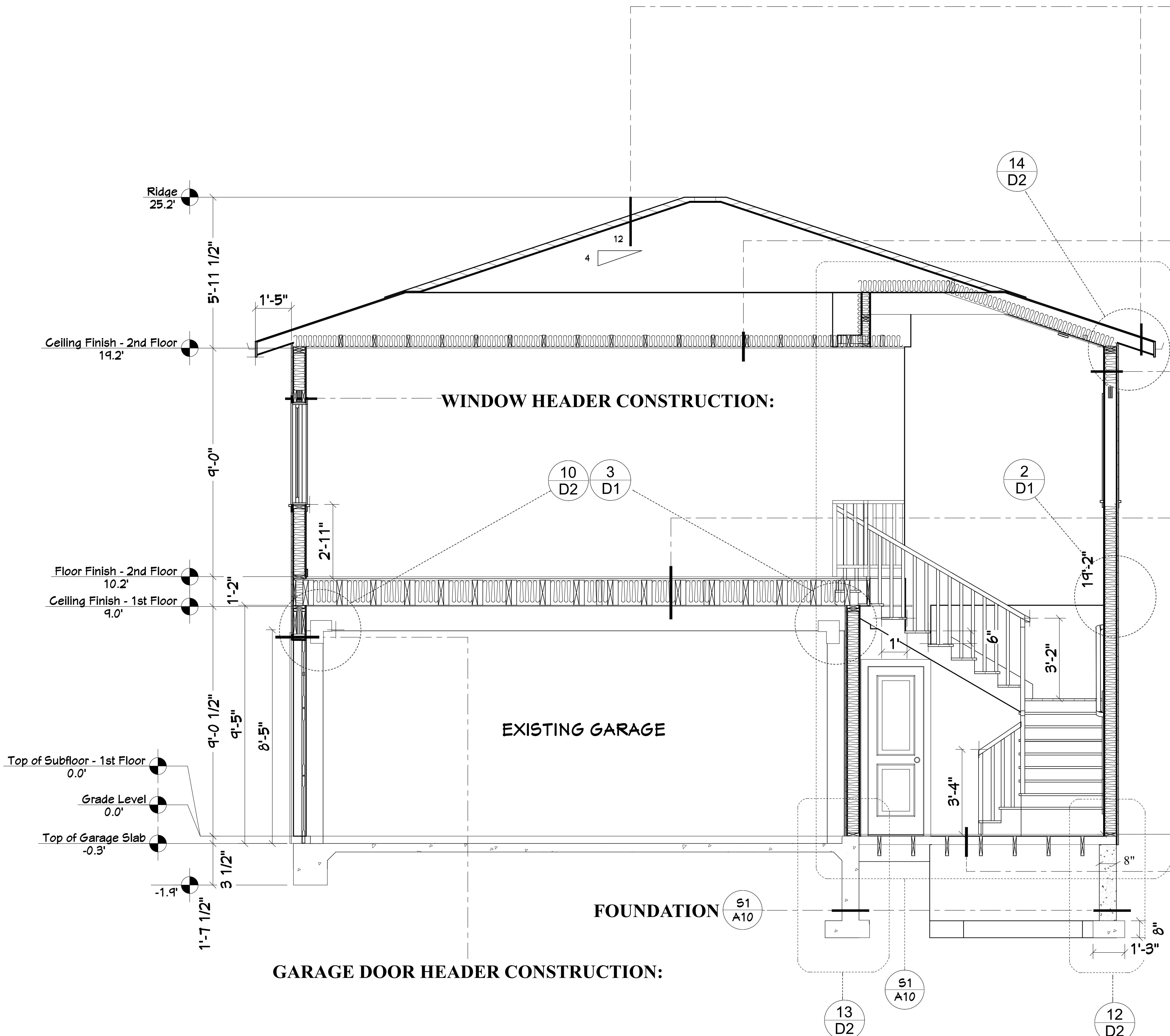
**FLOOR OVER CRAW SPACE ASSEMBLY:**

Finish floor by owner  
3/4" T&G Plywood Subfloor Glued & Nailed  
Floor framing 2x8 @ 16" O.C. (per plan)  
Min. R-30 Batt Insulation

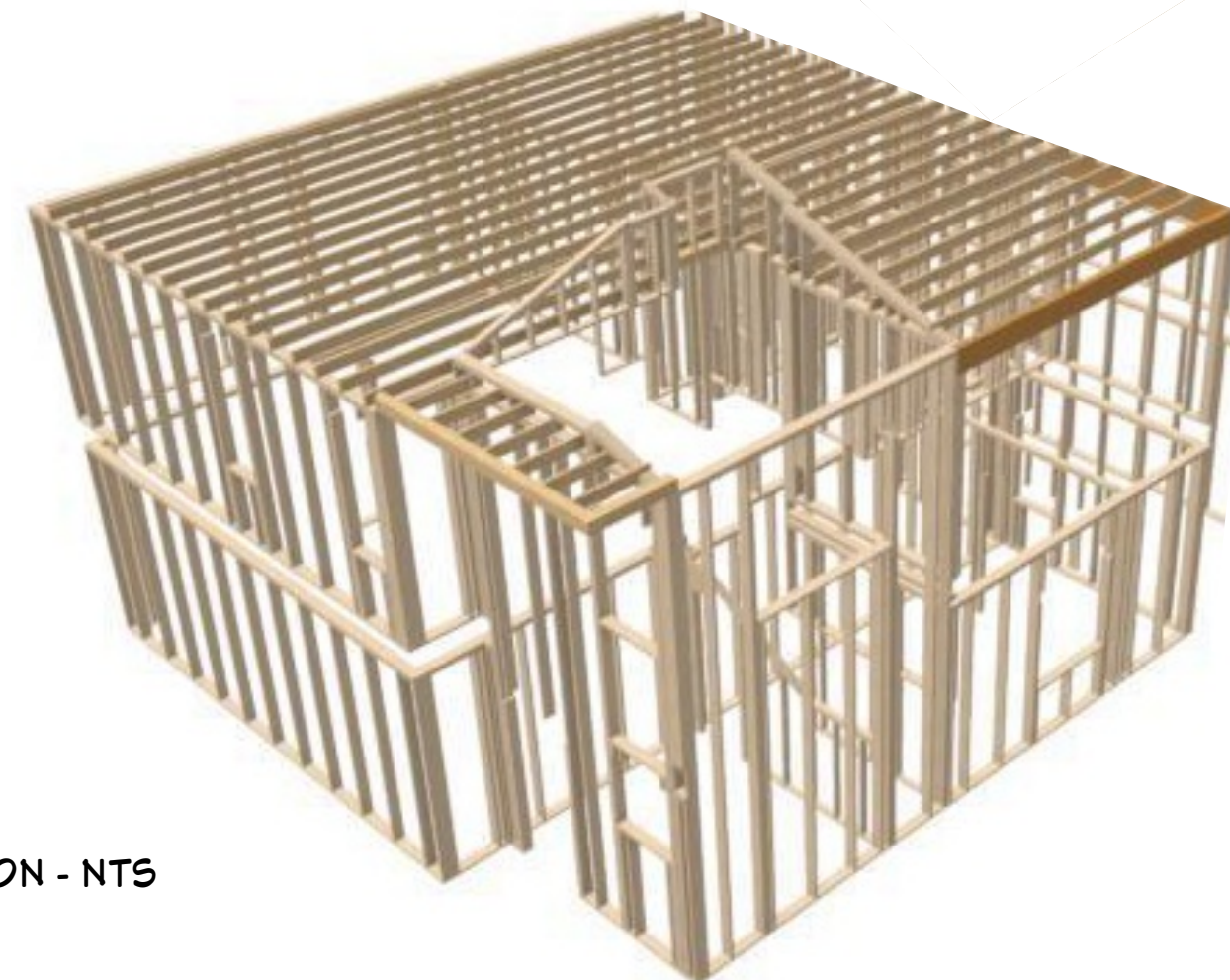
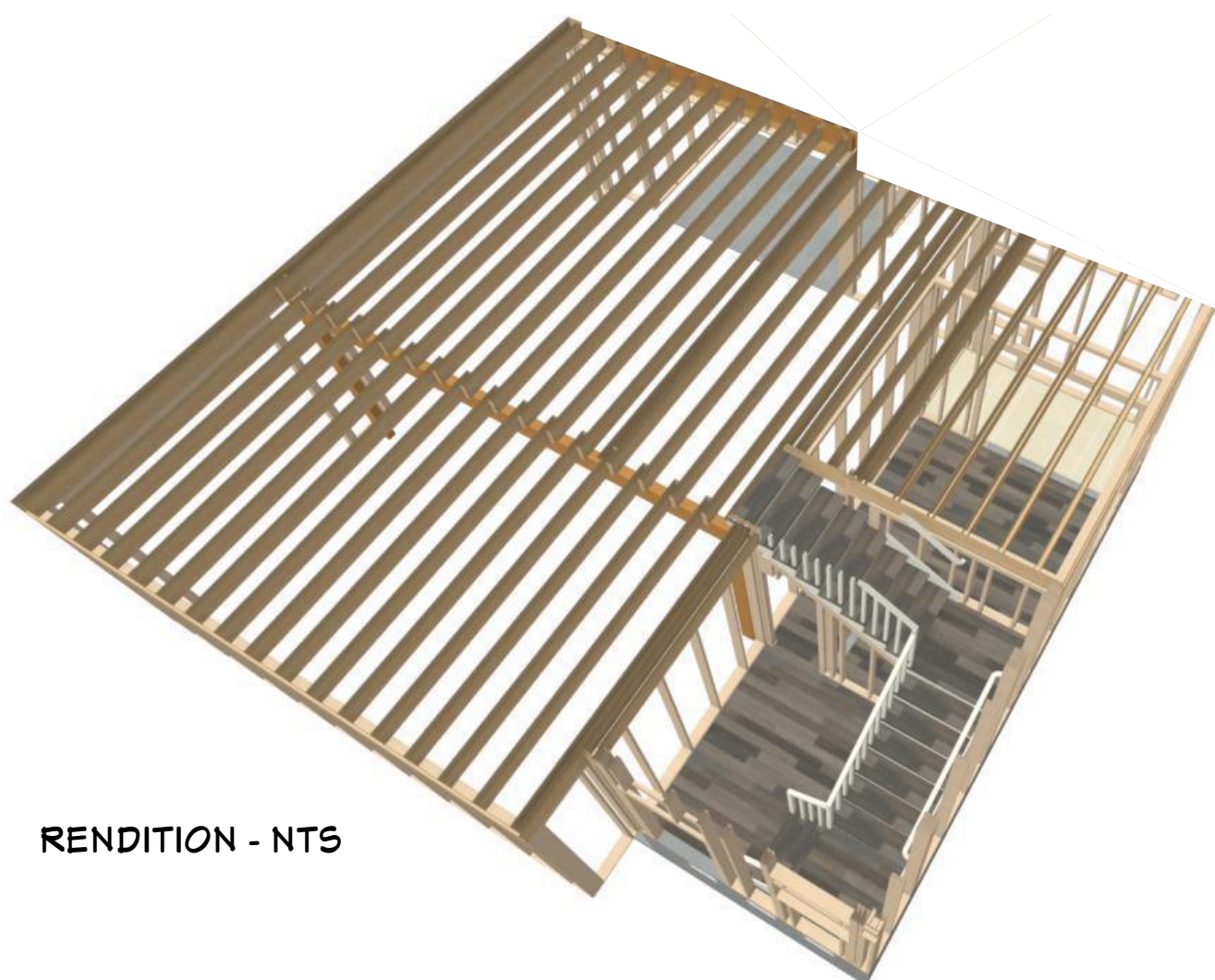
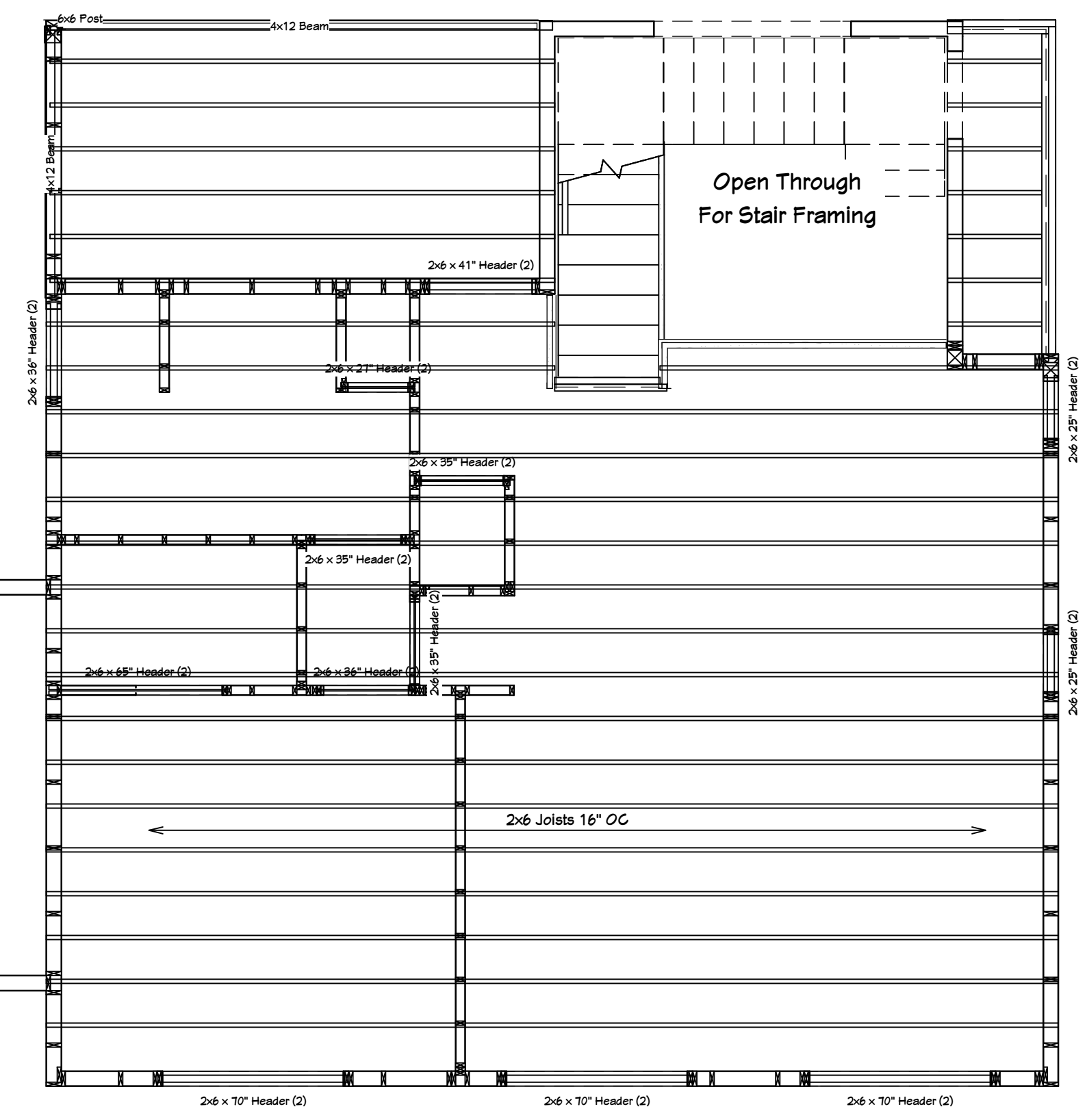
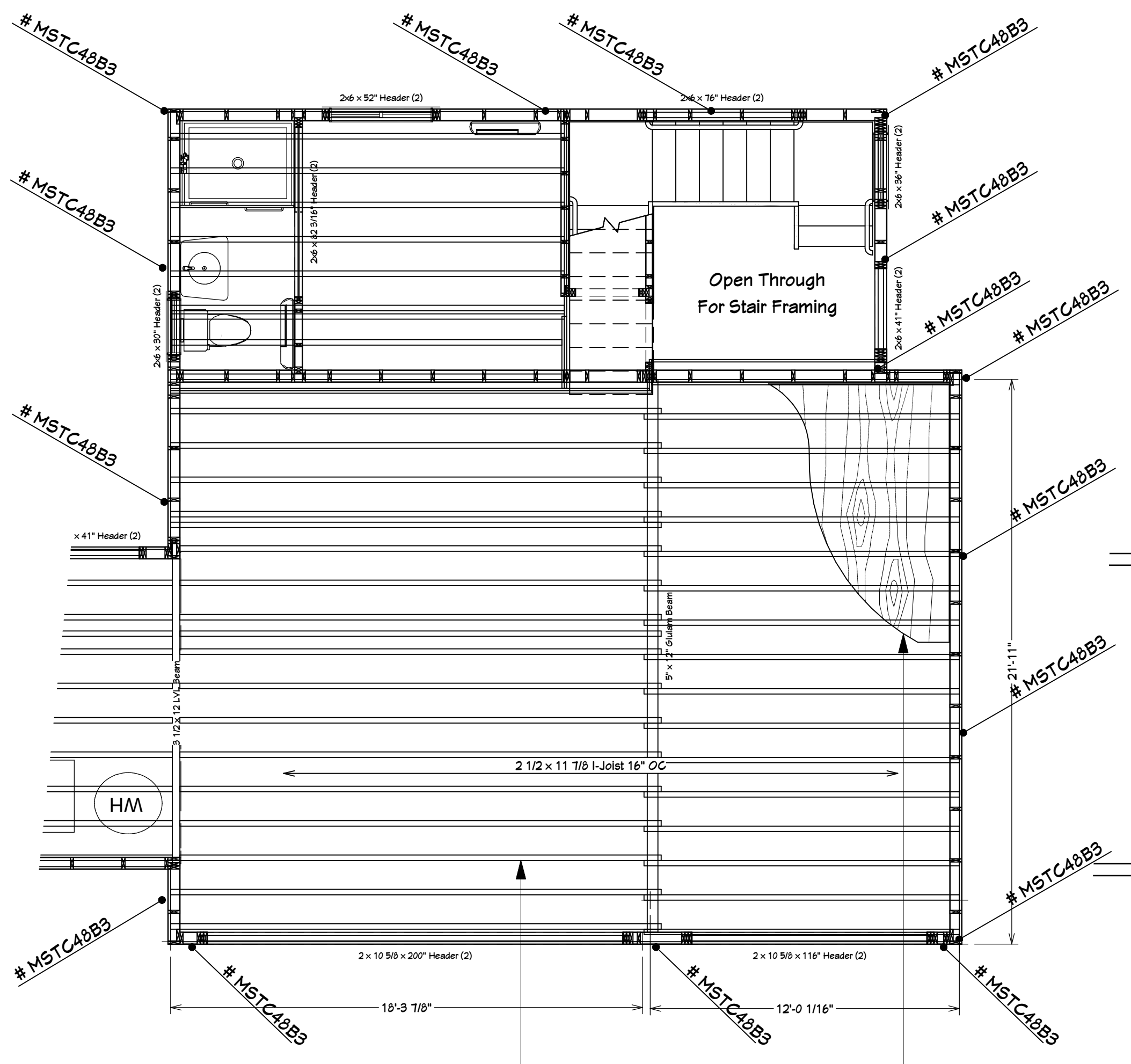
**WINDOW HEADER CONSTRUCTION:**

**EXISTING GARAGE**

**GARAGE DOOR HEADER CONSTRUCTION:**







## 2nd FLOOR CEILING FRAMING

SPAN TABLE IRC R802.5.1(3)							
JOISTS (10# D.L.)		FLOOR (40# L.L.) (L/360 L.L.)	CEILING (20# L.L.) (L/240 L.L.)	RAFTERS (30# L.L.) (L/240 L.L.)		TILE (20# D.L.)	COMP/SHAKE (10# D.L.)
NO. 2 H.F. MEMBER	SPACING O.C.	MAXIMUM SPAN	MAXIMUM SPAN	NO. 2 H.F. MEMBER	SPACING O.C.	MAXIMUM SPAN	MAXIMUM SPAN
2 X 6	12"	10'	14'-10"	2 X 6	12"	12'-2"	13'-7"
	16"	9'-1"	12'-10"		16"	10'-6"	11'-9"
	24"	7'-11"	10'-5"		24"	8'-7"	9'-7"
2 X 8	12"	13'-2"	18'-8"	2 X 8	12"	15'-4"	17'-2"
	16"	12'-0"	16'-2"		16"	13'-4"	14'-11"
	24"	10'-2"	13'-2"		24"	10'-10"	12'-2"
2 X 10	12"	16'-10"	22'-11"	2 X 10	12"	18'-9"	21'-0"
	16"	15'-2"	19'-10"		16"	16'-3"	18'-2"
	24"	12'-5"	16'-2"		24"	13'-3"	14'-10"
2 X 12	12"	20'-4"	26'-7"	2 X 12	12"	21'-9"	24'-4"
	16"	17'-7"	23'-0"		16"	18'-10"	21'-1"
	24"	14'-4"	18'-10"		24"	15'-5"	17'-3"

### FRAMING

ALL FRAMING TO COMPLY WITH IRC CHAPTER 6. NAIL SIZES AND SPACING TO CONFORM TO IRC TABLE R602.3(1) & TABLE R603.3(4).  
ALL WOOD IN CONTACT WITH CONCRETE TO BE PRESSURE TREATED.  
6" MIN. CLEARANCE BETWEEN WOOD AND EARTH  
18" MIN. CLEARANCE BETWEEN FLOOR JOISTS AND EARTH  
12" MIN. CLEARANCE BETWEEN FLOOR BEAMS AND EARTH

### LUMBER STRENGTH (UNITS IN PSI)

STUDS:	F <sub>b</sub>	F <sub>v</sub>
DOUG FIR-LARCH #2	900	180
HEM-FIR #1	975	180
JOIST, RAFTERS (2X10):	975	180
HEM - FIR #2 (2X12):	975	180
BMS. HDRS., LINTELS, GIRDERS (4X10):	900	180
4" NOMINAL DOUG-FIR #1	900	180
6" NOMINAL DOUG-FIR #1	900	180
GLUED LAMINATED TIMBERS:	2400	240
DOUG-FIR LARCH (24F-V3)	2400	240
MICRO-LAM LVL	2950	285

### TABLE R301.5 MINIMUM UNIFORMLY DISTRIBUTED LIVE LOADS

(N POUNDS PER SQUARE FOOT)

USE	LIVE LOAD
ATTICS WITH STORAGE <sup>1</sup>	20
ATTICS WITHOUT STORAGE <sup>1</sup>	10
DECK <sup>2</sup>	40
EXTERIOR BALCONIES	60
FIRE ESCAPES	40
GUARDRAILS AND HANDRAILS <sup>3</sup>	100
GUARDRAILS IN-FILL COMPONENTS <sup>3</sup>	50
PASSENGERS VEHICLE GARAGES <sup>4</sup>	80 <sup>a</sup>
ROOMS OTHER THAN SLEEPING ROOMS	40
SLEEPING ROOMS	30
STAIRS	40 <sup>c</sup>

FOR 6": 1 POUND PER SQUARE FOOT = 0.0179kN/m<sup>2</sup>, SQUARE INCH = 6.45mm, 1 POUND = 4.45N  
A. ELEVATED GARAGE FLOORS SHALL BE CAPABLE OF SUPPORTING A 2,000-POUND LOAD APPLIED OVER A 20 SQUARE INCH AREA.  
B. NO STORAGE WITH ROOF SLOPE NOT OVER 3 UNITS IN 12 UNITS.  
C. INDIVIDUAL STAIR TREADS SHALL BE DESIGNED FOR THE UNIFORMLY DISTRIBUTED LIVE LOAD OR A 300 POUND CONCENTRATED LOAD ACTING OVER AN AREA OF 4 SQUARE INCHES, WHICHEVER PRODUCES THE GREATER STRESSES.  
D. A SINGLE CONCENTRATED LOAD APPLIED IN ANY DIRECTION AT ANY POINT ALONG THE TOP.  
E. SEE SECTION R602.2.1 FOR DECKS ATTACHED TO EXTERIOR WALLS.  
F. GUARD IN-FILL COMPONENTS (ALL THOSE EXCEPT THE HANDRAIL), BALUSTERS AND PANEL FILLERS SHALL BE DESIGNED TO WITHSTAND A HORIZONTALLY APPLIED NORMAL LOAD OF 50 POUNDS ON AN AREA EQUAL TO 1 SQUARE FOOT. THIS LOAD NEED NOT BE ASSUMED TO ACT CONCURRENTLY WITH ANY OTHER LIVE LOAD REQUIREMENT.

BOLT HEADS AND NUTS BEARING AGAINST WOOD TO BE PROVIDED WITH FLAT CUT WASHERS. WOOD BEARING ON OR INSTALLED WITHIN 1" OF MASONRY OR CONCRETE TO BE TREATED WITH AN APPROVED PRESERVATIVE. SOLID BLOCKING OF NOT LESS THAN 2 X THICKNESS SHALL BE PROVIDED AT ENDS AND AT ALL SUPPORT OF JOISTS AND RAFTERS. BETWEEN SUPPORTS PROVIDE BLOCKING OR APPROVED BRIDGING AT 8'-0" O.C. FOR FLOOR JOISTS, 10'-0" FOR ROOF JOISTS. TYPICAL GILL BOLTS TO BE 1/2" DIAMETER AT 4'-0" O.C. OR PER SHEAR WALL SCHEDULE; MINIMUM 1" EMBEDMENT. ALL METAL FRAMING ANCHORS AND HANGERS SHOWN ON DRAWINGS SHALL BE "STRONG TIE CONNECTORS" AS MANUFACTURED BY SIMPSON COMPANY OR APPROVED EQUAL.

### PLYWOOD

PLYWOOD WALL AND ROOF SHEATHING SHALL BE 1/2" CDX OR 7/16 O.S.B. EXTERIOR GRADE, UNLESS OTHERWISE SPECIFIED. MINIMUM NAILING SHALL BE 8 PENNY @ 6" O.C. @ PANEL EDGES AND 12" O.C. IN FIELD. SPAN INDEX SHALL BE 24/0. PLYWOOD FLOOR SHEATHING SHALL BE 3/4" CDX T4G (OR EQUAL), UNLESS OTHERWISE SPECIFIED. MINIMUM NAILING SHALL BE 10 PENNY AT 6" O.C. @ PANEL EDGES AND 10" O.C. IN FIELD. SPAN INDEX SHALL BE 40/20. STAGGER END LAPS AT ROOF AND FLOOR SHEATHING. ALL EDGES OF PLYWOOD IN FLOOR, ROOF AND WALLS SHALL BE SUPPORTED. PLYWOOD EDGES AT FLOOR AND ROOF SHALL BE SUPPORTED AT EDGES WITH CLIPS, BLOCKING OR OTHER APPROVED METHODS. PLYWOOD EDGES AT WALLS SHALL BE SUPPORTED BY FRAMING MEMBERS OR BLOCKING. O.S.B. SHEATHING PRODUCTS OF EQUIVALENT SPAN RATINGS SHALL BE ALLOWED.

### STRUCTURAL GLUED-LAMINATED LUMBER

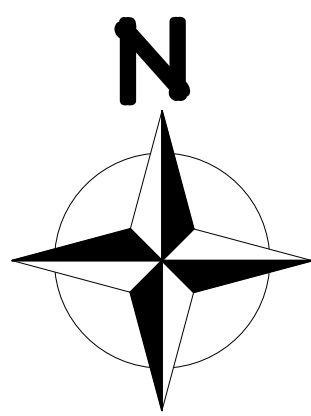
SHALL BE DOUGLAS FIR FABRICATED TO THE REQUIREMENTS OF U.S. PRODUCT STANDARD PS 56. LUMBER SHALL BE OF SUCH GRADE TO PROVIDE NORMAL WORKING STRESS VALUES OF 2400 PSI IN BENDING; 1100 PSI IN TENSION; 1600 PSI IN COMPRESSION PARALLEL TO GRAIN; 560 PSI IN COMPRESSION PERPENDICULAR TO GRAIN AND 165 PSI HORIZONTAL SHEAR (COMBINATION 24F-V3). LAMINATED MEMBERS TO BE AITC CERTIFIED. USE WATERPROOF GLUE.

### WOOD TRUSSES

TRUSSES SHALL BE DESIGNED BY A REGISTERED WASHINGTON STATE ENGINEER AND FABRICATED FROM ONLY THESE DESIGNS. TRUSSES TO BE STAMPED BY THE MANUFACTURER OR BY A QUALITY CONTROL AGENCY SUCH AS THE WASHINGTON STATE TRUSS FABRICATORS COUNCIL. ROOF TRUSS DESIGN SHALL BE SUBMITTED FOR APPROVAL PRIOR TO FABRICATION. NON-BEARING WALLS SHALL BE HELD AWAY FROM THE TRUSS BOTTOM CHORD WITH AN APPROVED FASTENER (SUCH AS SIMPSON STC) TO ENSURE THAT THE TRUSS BOTTOM CHORD WILL NOT BEAR ON THE WALL. APPROVED HANGERS SHALL BE USED AT ALL CONNECTIONS OF RAFTERS, JACK OR HIP TRUSSES TO THE MAIN GIRDER TRUSS. ALL ROOF TRUSSES SHALL BE FRAMED AND TIED INTO THE FRAME WORK AND SUPPORTING WALLS SO AS TO FORM AN INTEGRAL PART OF THE WHOLE BUILDING. ROOF TRUSSES SHALL HAVE JOINTS WELL FITTED AND SHALL HAVE ALL TENSION MEMBERS WELL TIGHTENED BEFORE ANY LOAD IS PLACED UPON THE TRUSS. DIAGONAL AND SWAY BRACING SHALL BE USED TO BRACE ALL TRUSSES. TRUSSES SHALL BE DESIGNED FOR UNIFORM LOADING AS FOLLOWS:

TOP CHORD 35 PSF OF TRIBUTARY AREA  
BOTTOM CHORD 10 PSF OF TRIBUTARY AREA  
TILE ROOF 45 PSF TOP CHORD AND 5 PSF BOTTOM CHORD

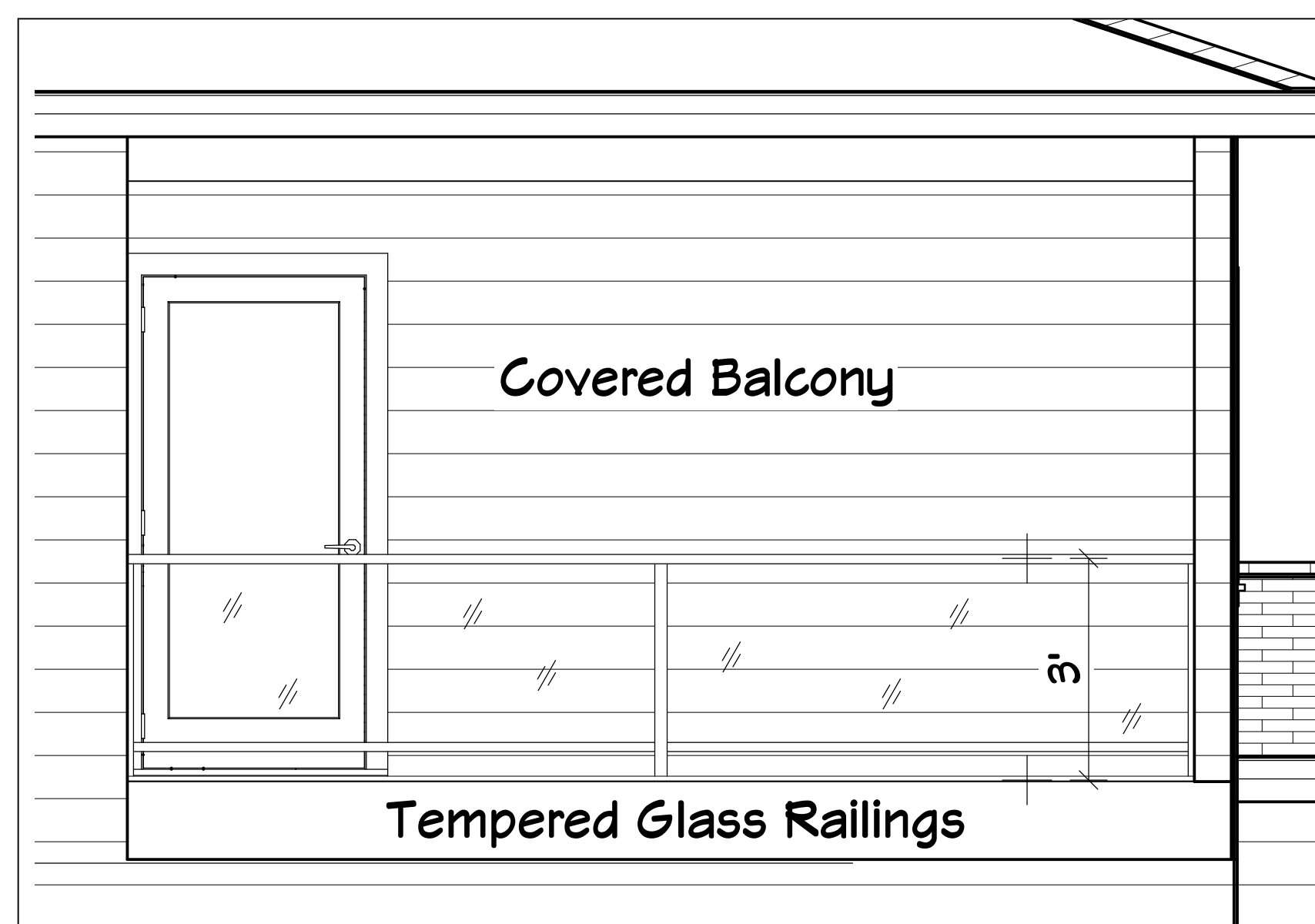
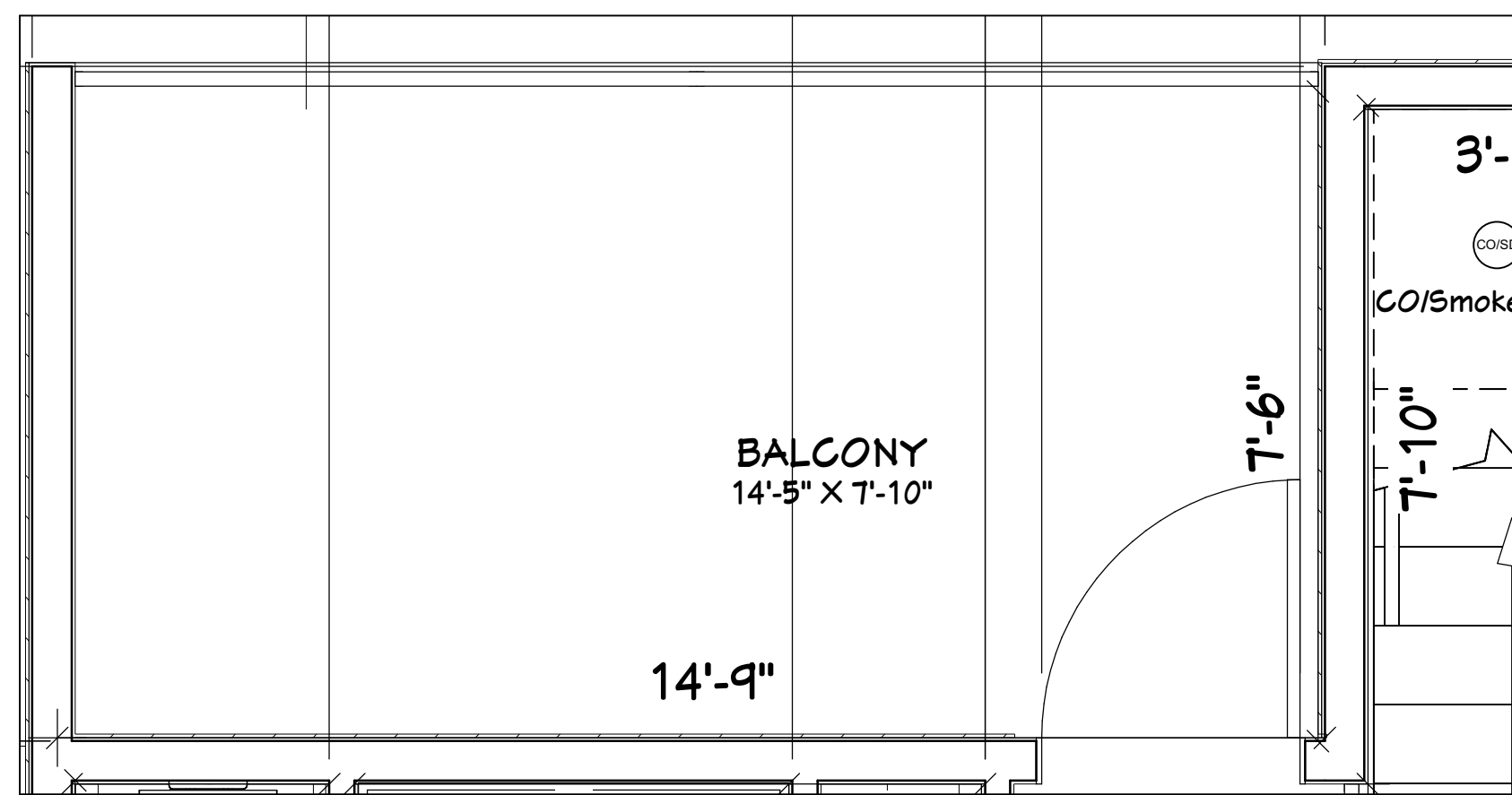
5/8" FINE CLAY (OR EQUIVALENT) PER IRC SECTION R1001.8



## FRAMING PLAN & NOTES

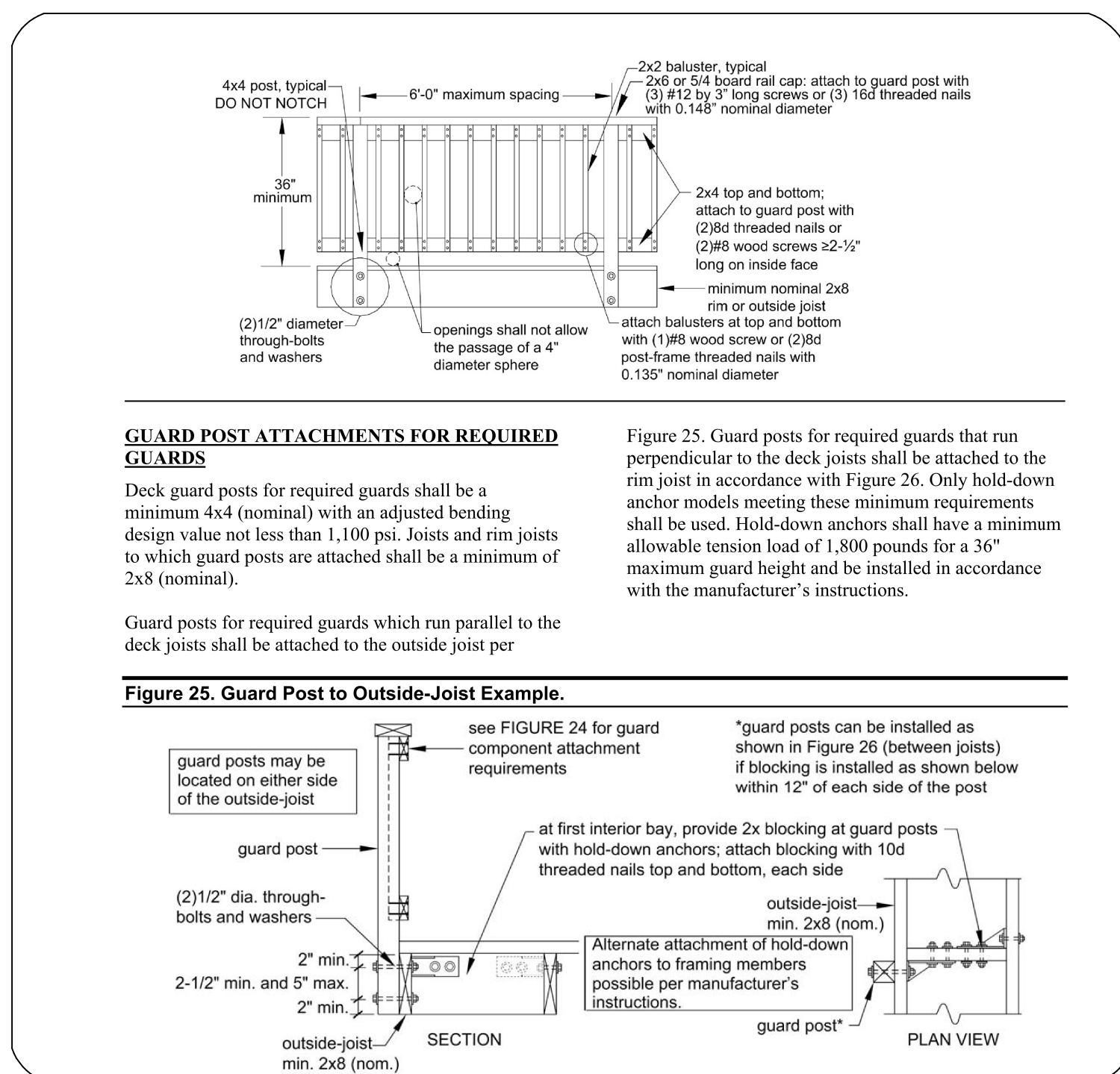
SCALE: 1/4" = 1'-0"

COMPLIANCE PATH PRESCRIPTIVE:  
**International Residential Code 2015 (IRC 2015)**  
with WA State Amendments



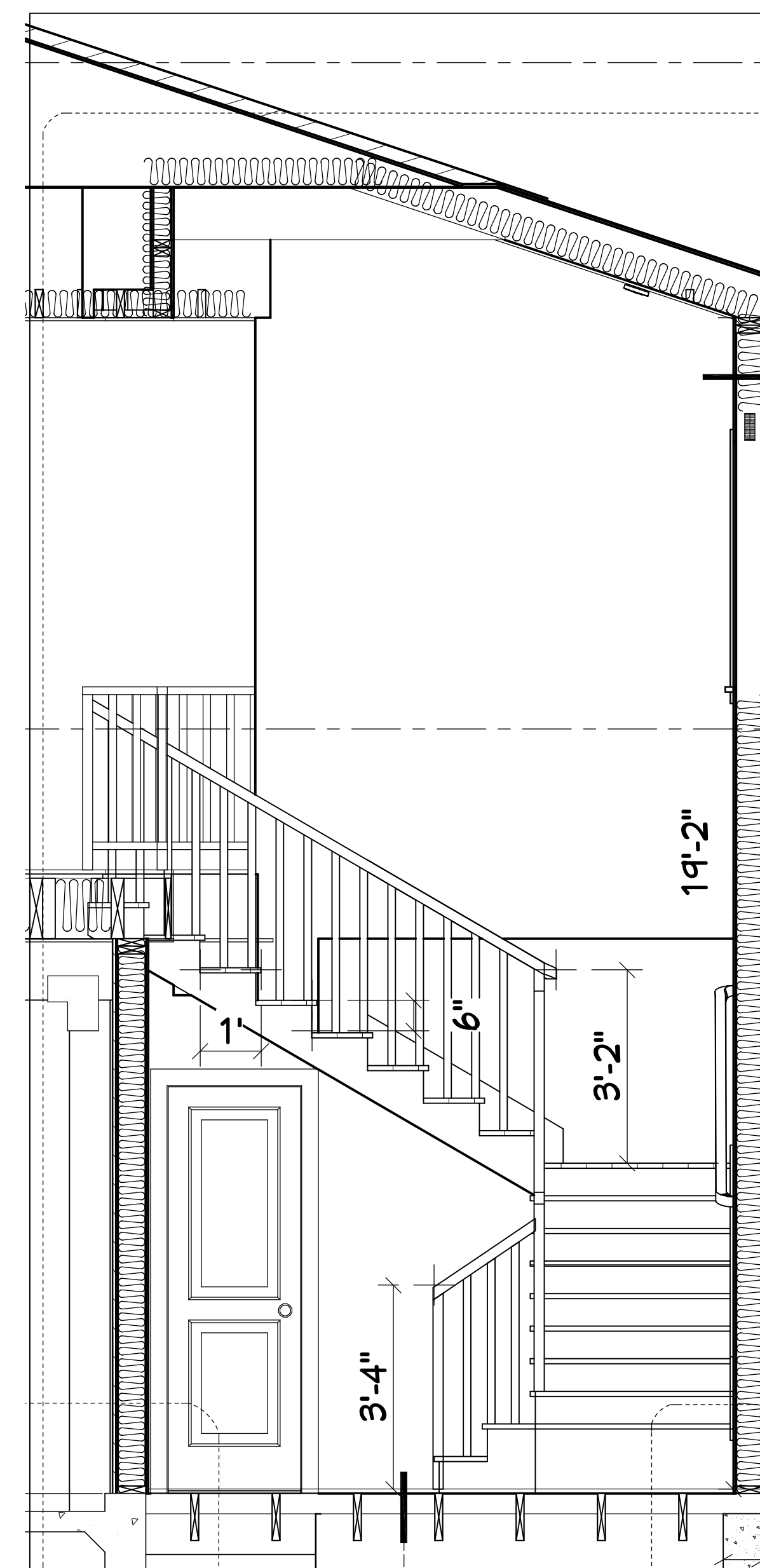
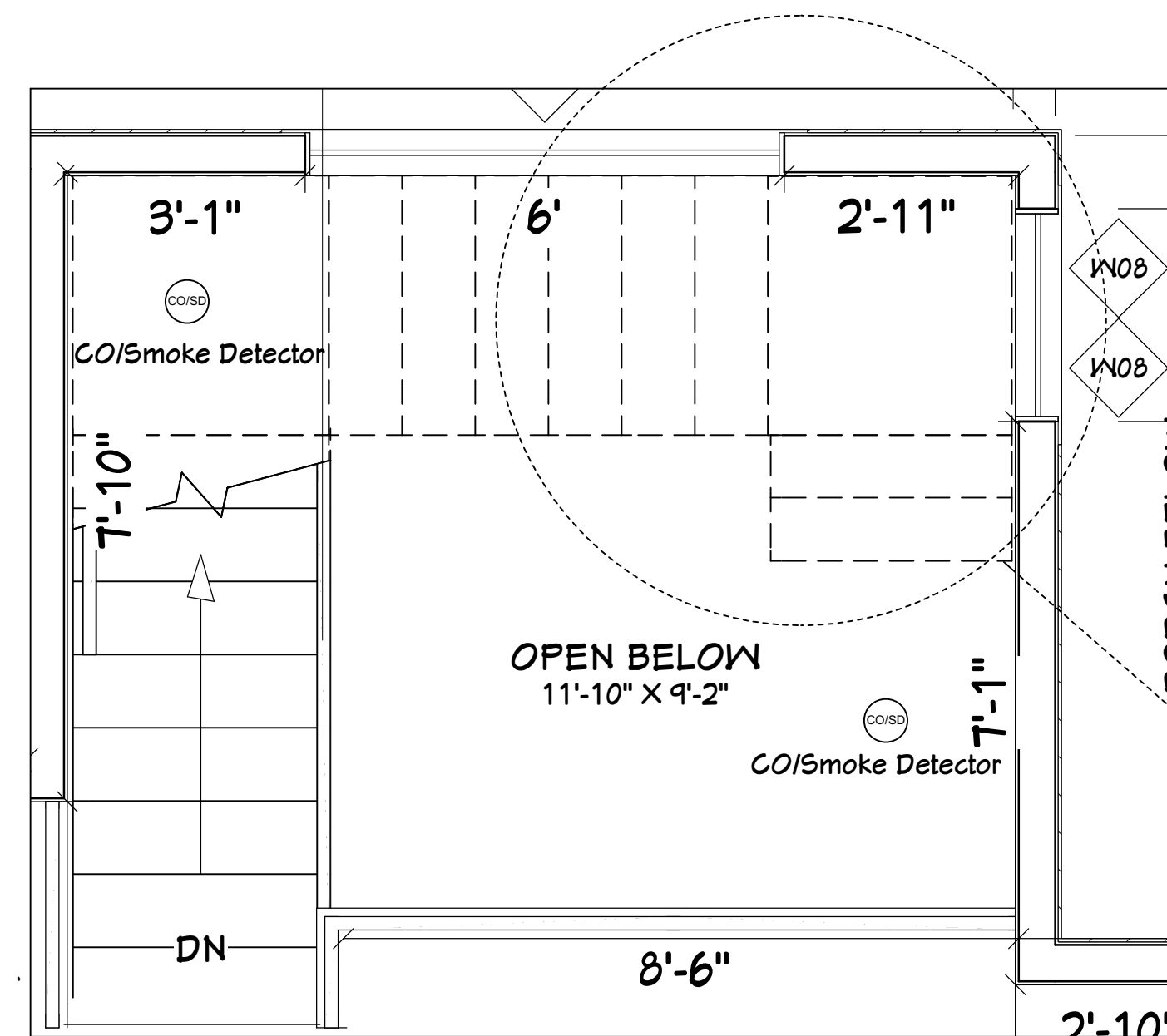
MISCELLANEOUS NOTES

1. GUARDRAILS TO BE 36" MIN. ABOVE FINISH FLOOR.
2. HANDRAILS TO BE 34" - 38" ABOVE NOSING, WITH HANDGRIP OF 1 1/2" - 2" IN
3. OPEN GUARDRAILS SHALL HAVE INTERMEDIATE RAILS OR ORNAMENTAL PATTERN SUCH THAT A SPHERE 4" IN DIAMETER CANNOT PASS THROUGH.
4. ONE HOUR FIRE SEPARATIONS BETWEEN GARAGE AND DWELLING: INSTALL 1/2" TYPE-X ON ALL WALLS AND CEILINGS, BEARING WALLS. STAGGER JOINTS FROM PLYWOOD BELOW WHERE APPLICABLE.
5. BEDROOM EMERGENCY EGRESS WINDOWS: MINIMUM NET CLEAR OPENING OF 5.7 SQ. FT., WIDTH OF 20" AND MINIMUM 24". MAXIMUM FINISHED SILL HEIGHT OF 44" ABOVE
6. EACH SLEEPING ROOM SHALL BE PROVIDED W/ A SMOKE DETECTOR (INTERCONNECTED) PER SECTION (F) R313.1. SMOKE DETECTORS SHALL BE PROVIDED W/ A BATTERY BACK-UP, PER SEC. (F) R313.1 AND, LOCATED PER SECTION (F) R313.1.
7. ANCHORED VENEER SHALL BE PROVIDED WITH #2 GA. X 3/4" CORROSION RESISTANT ANCHOR TIES. THE ANCHOR TIES SHALL BE SPACED A MAX. OF 24" O.C. AND SUPPORT NO MORE THAN 2 SQ. FT. OF VENEER. IN SEISMIC ZONE 3 & 4 THE EXTENDED LEG OF THE ANCHOR TIE SHALL LOOP AROUND A #3 GA. CONT. HORIZ. JOINT REINFORCEMENT WIRE.



**B1 BALCONY GUARD RAIL DETAILS**

SCALE: 1/2" = 1'-0"



**S1 STAIR DETAILS**

SCALE: 1/2" = 1'-0"

SHEET NUMBER  
**A10**

DATE: 06.12.20  
DRAWN BY: K.C.

**STAIR & BALCONY DETAILS**

**TOM & KIM TSO**  
8802 SE 37th ST.  
MERCER ISLAND WA 98040

**KESH DESIGN LINES LLC**  
425 344 9906



**ROOF FRAMING NOTES**

- USE 4x10 OR 6x8 DF #2 FOR BEAMS AND HEADERS UNO.
- ALL RAFTERS TO BE: 2x12 HF #2 AT 24" O.C. TYPICAL UNO.
- ALL TRUSSES TO BE AT 24" O.C. TYPICAL UNO.
- PROVIDE ROOF VENTS PER SEC. R806 IRC.
- ROOF PITCH TO BE 4 : 12 TYPICAL UNLESS OTHERWISE NOTED.
- 24" O.H. TYPICAL \* EAVES 4" 12" O.H. TYPICAL \* GABLE ENDS, RAKES.
- APPROVED ANCHORS SHALL BE USED AT ALL CONNECTIONS OF RAFTERS, JACK OR HIP TRUSSES TO MAIN GIRDER TRUSS (PER TRUSS MANUF.) WHERE APPLICABLE. PROVIDE "SIMPSON" HI FRAMING ANCHORS AT EVERY RAFTER/TRUSS AT EACH END AND AT GABLE END TRUSSES.
- VENTED BLOCKING OVER SUPPORTS.
- CHIMNEY HEIGHT TO BE 2'-0" MIN. ABOVE ANY PORTION OF BUILDING WITHIN 10'-0" PER IRC SECTION R1001.6
- BRACING: (STICK FRAMED AREAS ONLY)
  - (2) 2x4 UP TO 10' LONG.
  - (2) 2x6 10' TO 14' LONG.
  - (3) 2x6 OVER 14' LONG.
- PLATE HEIGHTS:
  - MAIN FLOOR 9'-0", TYP. UNO.
  - UPPER FLOOR 9'-0", TYP. UNO.
- TRUSSES:
  - CARRY MFRG STAMP.
  - DO NOT ALTER WITHOUT BUILDING DEPARTMENT APPROVAL.
  - INSTALL AND BRACE PER MFRG SPEC.
  - NON-BEARING WALLS SHALL BE HELD DOWN FROM THE TRUSS BOTTOM CHORDS WITH AN APPROVED FASTENER (SUCH AS SIMPSON STC).
- CONTRACTOR TO VERIFY LOCATION OF ALL ROOF SUPPORT BRACING OR POSTING AND PROVIDE ADEQUATE BEARING TO FOUNDATION.
- HANGERS AT POSITIVE CONNECTIONS TO BE SIMPSON OR EQUAL.

**TRUSS FRAMING NOTES**

\* TRUSS ENGINEERING: PER IRC R802.10.1 TRUSS ENGINEER OF RECORD WHO WILL REVIEW, APPROVE AND NOTE ON THE DOCUMENTS THAT THEY HAVE FOUND TO BE IN GENERAL CONFORMANCE WITH THE DESIGN OF THE BUILDING. THE ENGINEER-APPROVED DOCUMENTS WILL THEN BE FORWARDED TO THE BUILDING OFFICIAL FOR REVIEW AND APPROVAL PRIOR TO FRAMING INSPECTION. CITY APPROVED DOCUMENTS SHALL BE ON THE JOB SITE AT INSPECTIONS. TRUSS ENGINEERING SHALL INCLUDE SPECIFIC TRUSS BRACING REQUIREMENTS.

**NOTE**

**VENTILATION CALCULATIONS AND REQUIREMENTS**

AT LEAST 40% + NOT MORE THAN 50% OF REQUIRED VENTS SHALL BE IN UPPER PORTION OF VENTILATED ROOF SPACE (MIN. 3" ABOVE EAVE OR CORNICE VENTS) WITH THE BALANCE OF REQUIRED VENTILATION PROVIDED BY EAVE VENTING.

PER IRC 806.1 ENCLOSED ATTICS AND ENCLOSED RAFTER SPACES FOR WHERE CEILING ARE APPLIED DIRECTLY TO THE UNDERSIDE OF ROOF RAFTERS SHALL HAVE CROSS VENTILATION. CROSS VENTILATION SPACE BY VENTILATING OPENINGS PROTECTED AGAINST THE ENTRANCE OF RAIN OR SNOW. VENTILATING OPENINGS SHALL BE PROVIDED WITH CORROSION RESISTANT WIRE MESH, WITH 1/8" MIN. 4 1/4" MAX. OPENINGS.

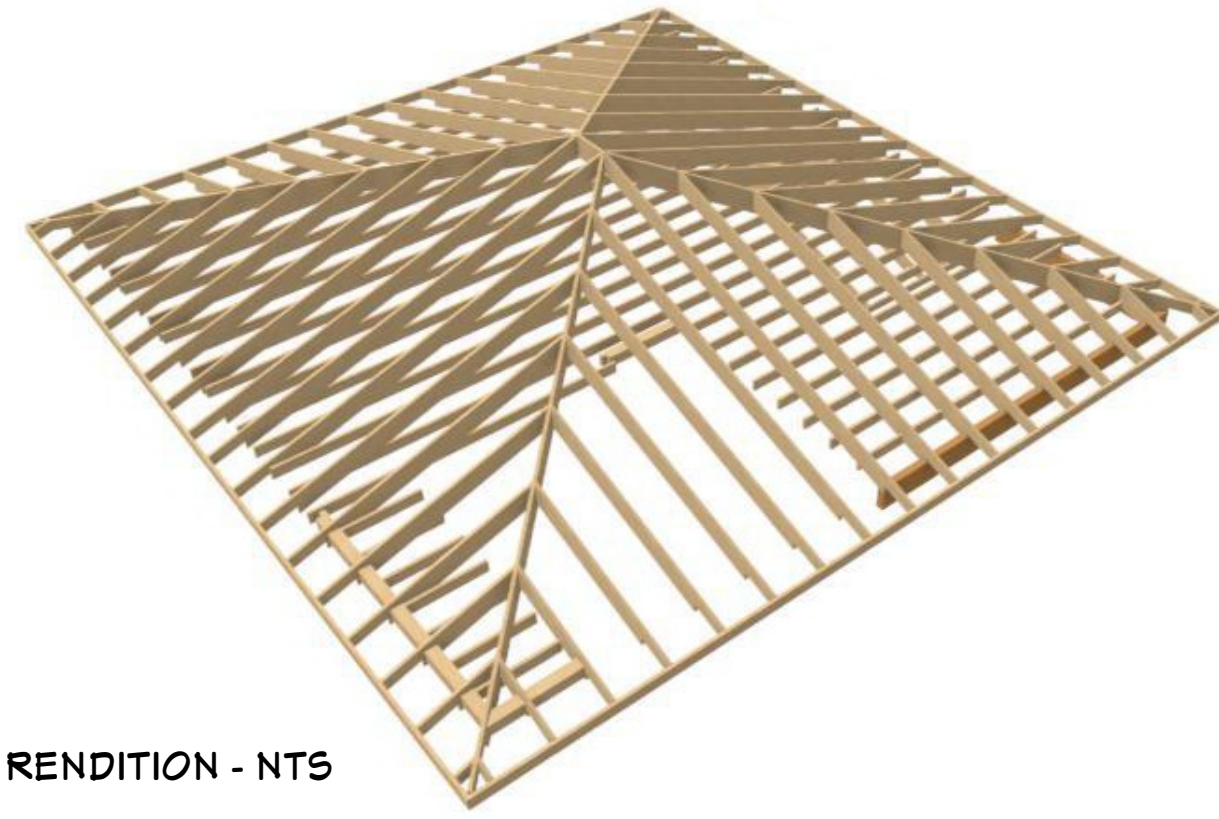
IF EAVE VENTS ARE INSTALLED INSULATION SHALL NOT OBSTRUCT FLOW OF AIR (MIN. 1" SPACE BETWEEN INSULATION AND ROOF SHEATHING \* VENT LOCATION.

BAFFLING OF THE VENT OPENINGS SHALL BE INSTALLED. BAFFLES SHALL BE RIGID AND WIND-DRIVEN MOISTURE RESISTANT. IF FEASIBLE BAFFLES SHOULD BE INSTALLED FROM THE TOP OF THE OUTSIDE OF THE EXTERIOR WALL, EXTENDING INWARD, TO A POINT OF VENTILATION ABOVE THE HEIGHT OF NON-COMPRESSED INSULATION. VENTILATION SHALL BE NET FREE AREA. (ALL CALCULATIONS WILL BE NET FREE AREA)

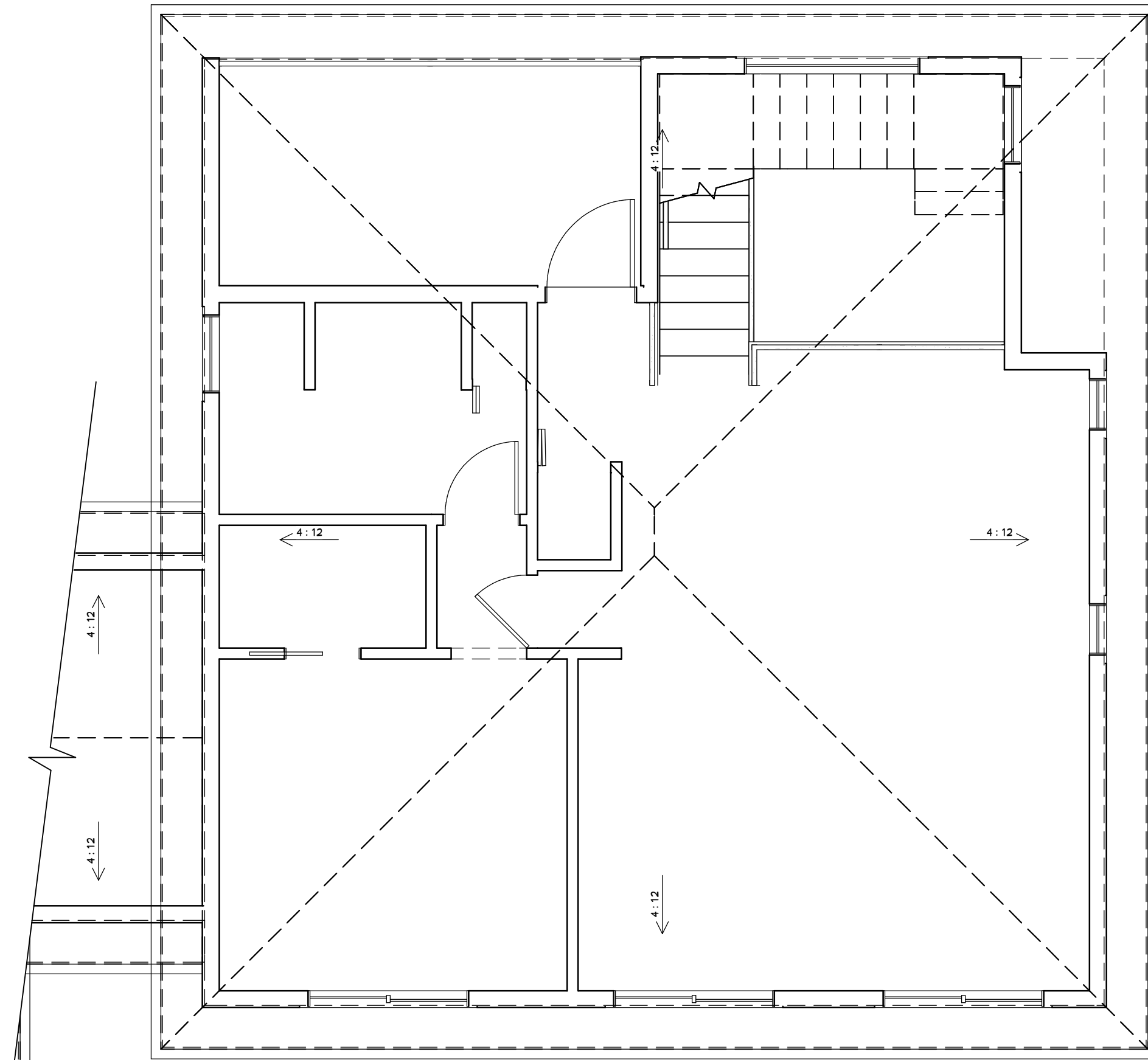
1000 SQ. FT. OF ATTIC AREA/300=3.33 SQ. FT. OF VENTILATION REQUIRED (400 SQ. INCHES) HIGH VENT \* 240 SQ. IN. LOW VENT \* 240 SQ. IN.

NOTE: EAVE VENTING PROVIDED BY (3/4" DIAMETER "BIRD HOLES" PER EAVE BLOCK (1 1/2" sq. in. PER BLOCK).

NOTE: UPPER ROOF VENTING PROVIDED BY 1"x1" ROOF VENTS (.45 sq. in. PER VENT)



RENDERING - NTS



ROOF PITCH: 4-12 U.O.N

**ROOF PLAN**

SCALE: 1/4" = 1'-0"

**FIREBLOCKING AND DRAFTSTOPPING**

PER IRC SECTION R602.8 FIREBLOCKING SHALL BE PROVIDED TO CUT OFF ALL CONCEALED VERTICAL AND HORIZONTAL DRAFT OPENINGS AND TO FORM AN EFFECTIVE FIRE BARRIER BETWEEN STORIES AND BETWEEN A TOP STORY AND THE ROOF SPACE. FIREBLOCKING SHALL BE PROVIDED IN WOOD FRAME CONSTRUCTION IN THE FOLLOWING LOCATIONS:

- IN CONCEALED SPACES OF STUD WALLS AND PARTITIONS, INCLUDING PURSED SPACES AND PARALLEL ROWS OF STUDS OR STAGGERED STUDS AS FOLLOWS: A) VERTICALLY AT THE CEILING AND FLOOR LEVELS. B) HORIZONTALLY AT INTERVALS NOT EXCEEDING 10 FEET.
- AT ALL INTERCONNECTIONS BETWEEN CONCEALED VERTICAL AND HORIZONTAL SPACES SUCH AS OCCUR IN SOFFITS, DROP CEILING, AND COVE CEILING.
- IN CONCEALED SPACES BETWEEN STAIR STRINGERS AT THE TOP AND BOTTOM OF THE RUN. ENCLOSED SPACES UNDER STAIRS SHALL COMPLY WITH SECTION R312.2.
- AT OPENINGS AROUND VENTS, PIPES, DUCTS, CABLES AND WIRES AT CEILING AND FLOOR LEVEL, WITH AN APPROVED MATERIAL TO RESIST THE FREE PASSAGE OF FLAME AND PRODUCTS OF COMBUSTION.
- FOR THE FIREBLOCKING OF CHIMNEYS AND FIREPLACES SEE IRC SECTION R1003.9.
- FIREBLOCKING OF CORNICES OF A TWO FAMILY DWELLING IS REQUIRED AT THE LINE OF DWELLING UNIT SEPERATION. FIREBLOCKING MATERIALS SHALL CONSIST OF MATERIAL LISTED IN IRC SECTION R602.8.1. LOOSE FILL INSULATION MATERIAL SHALL NOT BE USED AS A FIREBLOCK UNLESS SPECIFICALLY TESTED IN THE FORM AND MANNER INTENDED. THE INTEGRITY OF ALL FIREBLOCKS SHALL BE MAINTAINED.

PER IRC SECTION R502.12 DRAFTSTOPPING: WHEN THERE IS USABLE SPACE BOTH ABOVE AND BELOW THE CONCEALED SPACE OF A FLOOR/CEILING ASSEMBLY, DRAFTSTOPPING SHALL BE INSTALLED SO THAT THE AREA OF THE CONCEALED SPACE DOES NOT EXCEED 1000 SF. DRAFTSTOPPING SHALL DIVIDE THE CONCEALED SPACE INTO APPROX. EQUAL AREAS, WHERE THE ASSEMBLY IS ENCLOSED BY A FLOOR MEMBRANE ABOVE AND A CEILING MEMBRANE BELOW DRAFTSTOPPING. FIREBLOCKING SHALL BE PROVIDED IN FLOOR/CEILING ASSEMBLIES UNDER THE FOLLOWING CIRCUMSTANCES:

- CEILING IS SUSPENDED UNDER THE FLOOR FRAMING.
- FLOOR FRAMING IS CONSTRUCTED OF TRUSS-TYPE OPEN-WEB OR PERFORATED MEMBERS.

DRAFTSTOPPING MATERIALS SHALL CONSIST OF MATERIALS LISTED IN IRC SECTION R502.12.1.

**WOOD TRUSSES**

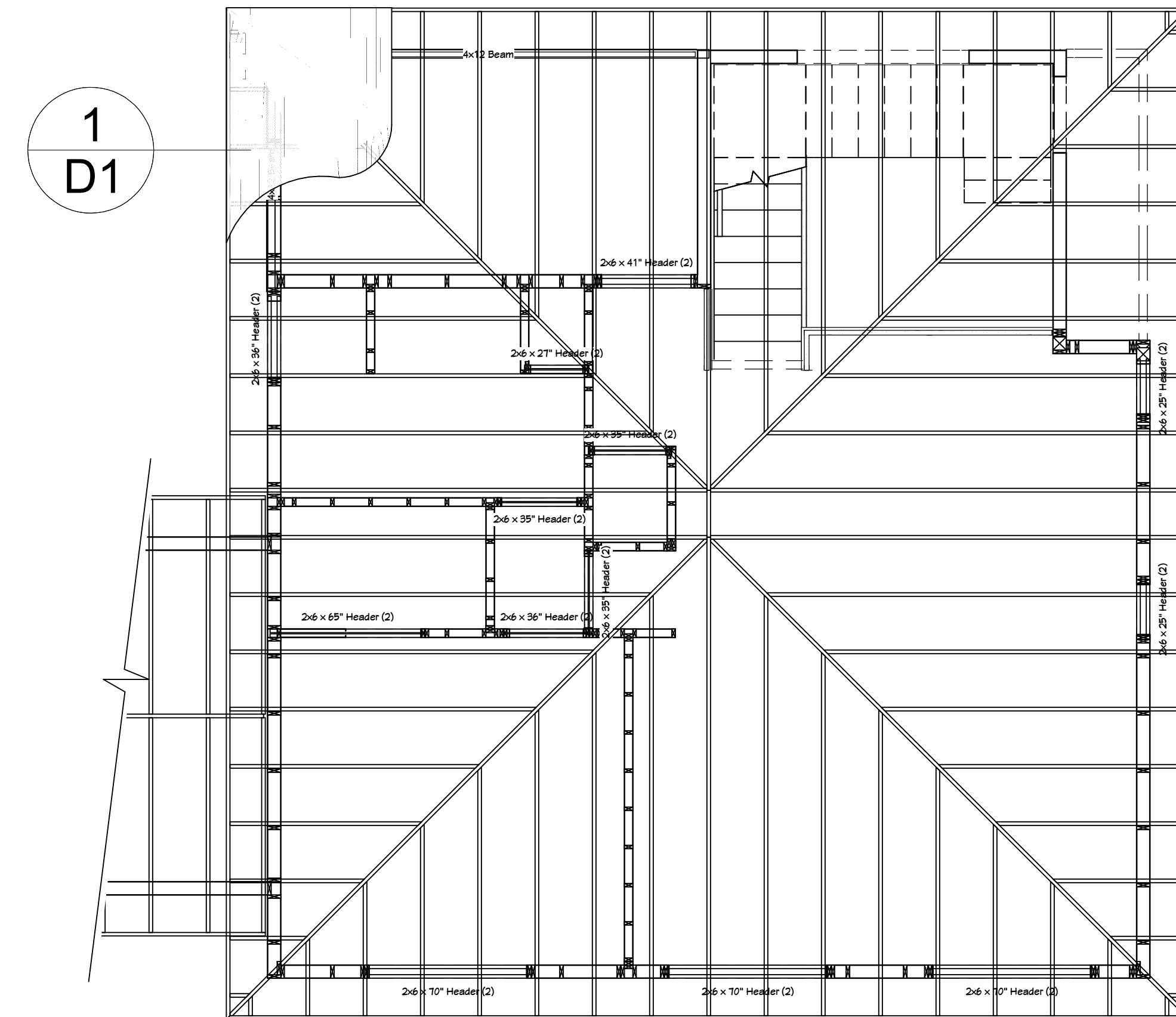
TRUSSES SHALL BE DESIGNED BY A REGISTERED WASHINGTON STATE ENGINEER AND FABRICATED FROM ONLY THESE DESIGNS. TRUSSES TO BE STAMPED BY THE MANUFACTURER OR BY A QUALITY CONTROL AGENCY SUCH AS THE WASHINGTON STATE TRUSS FABRICATORS COUNCIL. ROOF TRUSS DESIGN SHALL BE SUBMITTED FOR APPROVAL PRIOR TO FABRICATION. NON-BEARING WALLS SHALL BE HELD AWAY FROM THE TRUSS BOTTOM CHORD WITH AN APPROVED FASTENER (SUCH AS SIMPSON STC) TO ENSURE THAT THE TRUSS BOTTOM CHORD WILL NOT BEAR ON THE WALL. APPROVED HANGERS SHALL BE USED AT ALL CONNECTIONS OF RAFTERS, JACK OR HIP TRUSSES TO THE MAIN GIRDER TRUSS. ALL ROOF TRUSSES SHALL BE FRAMED AND TIED INTO THE FRAME WORK AND SUPPORTING WALLS SO AS TO FORM AN INTEGRAL PART OF THE WHOLE BUILDING. ROOF TRUSSES SHALL HAVE JOINTS WELL FITTED AND SHALL HAVE ALL TENSION MEMBERS WELL TIGHTENED BEFORE ANY LOAD IS PLACED UPON THE TRUSS. DIAGONAL AND SWAY BRACING SHALL BE USED TO BRACE ALL TRUSSES. TRUSSES SHALL BE DESIGNED FOR UNIFORM LOADING AS FOLLOWS:

TOP CHORD 35 PSF OF TRIBUTARY AREA  
 BOTTOM CHORD 10 PSF OF TRIBUTARY AREA  
 TILE ROOF 45 PSF TOP CHORD AND 5 PSF BOTTOM CHORD

5/8" FORE CLAY (OR EQUIVALENT) PER IRC SECTION R1001.8

**NOTES:**

ALL ROOF & CEILING CONSTRUCTION METHODS PRESCRIPTIVE. REFERENCES TO CHAPTER 1, CHAPTER 9 & CHAPTER 8 2015 IRC CODE WITH AMENDMENTS 2015 WA RESIDENTIAL CODE



**Per R802.10 Wood Trusses**

ATTIC VENTILATION: AREA / 300

PROVIDE 1" MIN. AIR GAP AT EAVES WITH INSULATION BAFFLES TYP. AT ALL TRUSS BAYS.

PROVIDE GABLE VENTS ALL GABLE ENDS.

PROVIDE GALV. ROOF VENTS ON BACKSIDE OF ROOFLINE ABOVE CONDITIONED AREA.

- ALL TRUSSES SHALL CARRY MANUFACTURERS STAMP.
- ALL TRUSSES SHALL BE INSTALLED & BRACED TO MANUFACTURERS SPECIFICATIONS.
- ALL TRUSSES WILL NOT BE FIELD ALTERED WITHOUT PRIOR BUILDING DEPT. APPROVAL OF ENGINEERING CALCULATIONS.
- ALL TRUSSES SHALL HAVE DESIGN DETAILS & DRAWINGS ON SITE FOR FRAMING INSPECTION.
- NON BEARING WALLS SHOULD BE HELD DOWN FROM THE TRUSS BOTTOM CHORD W/ SIMPSON STC TO INSURE THAT THE TRUSS BOTTOM CHORD WILL NOT BEAR ON THE WALL.
- ALL CONNECTIONS OF RAFTERS, JACK OR HIP TRUSSES TO MAIN GIRDER TO BE PROVIDED BY TRUSS MANUFACTURE.
- ALL ROOF FRAMING 24" O.C.
- ALL ROOF PITCH 8:12
- SCISSORS TRUSS CEILING PITCH 2:12.
- TRUSSES MANUFACTURED BY (TO BE DETERMINED)
- ALL OVERHANGS 16".

SHEET NUMBER

**A11**

DATE: 06.12.20

DRAWN BY: K.C.

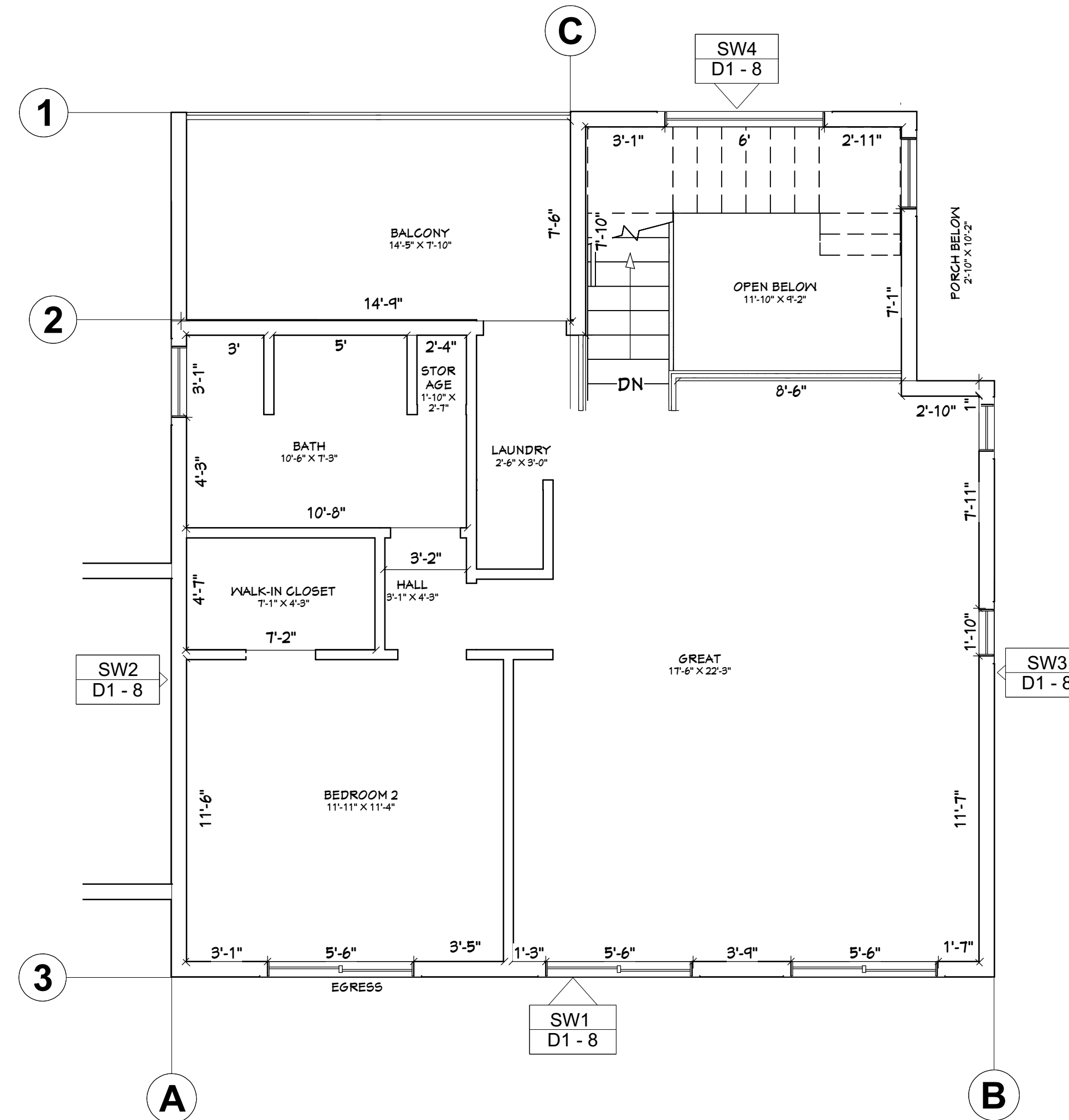
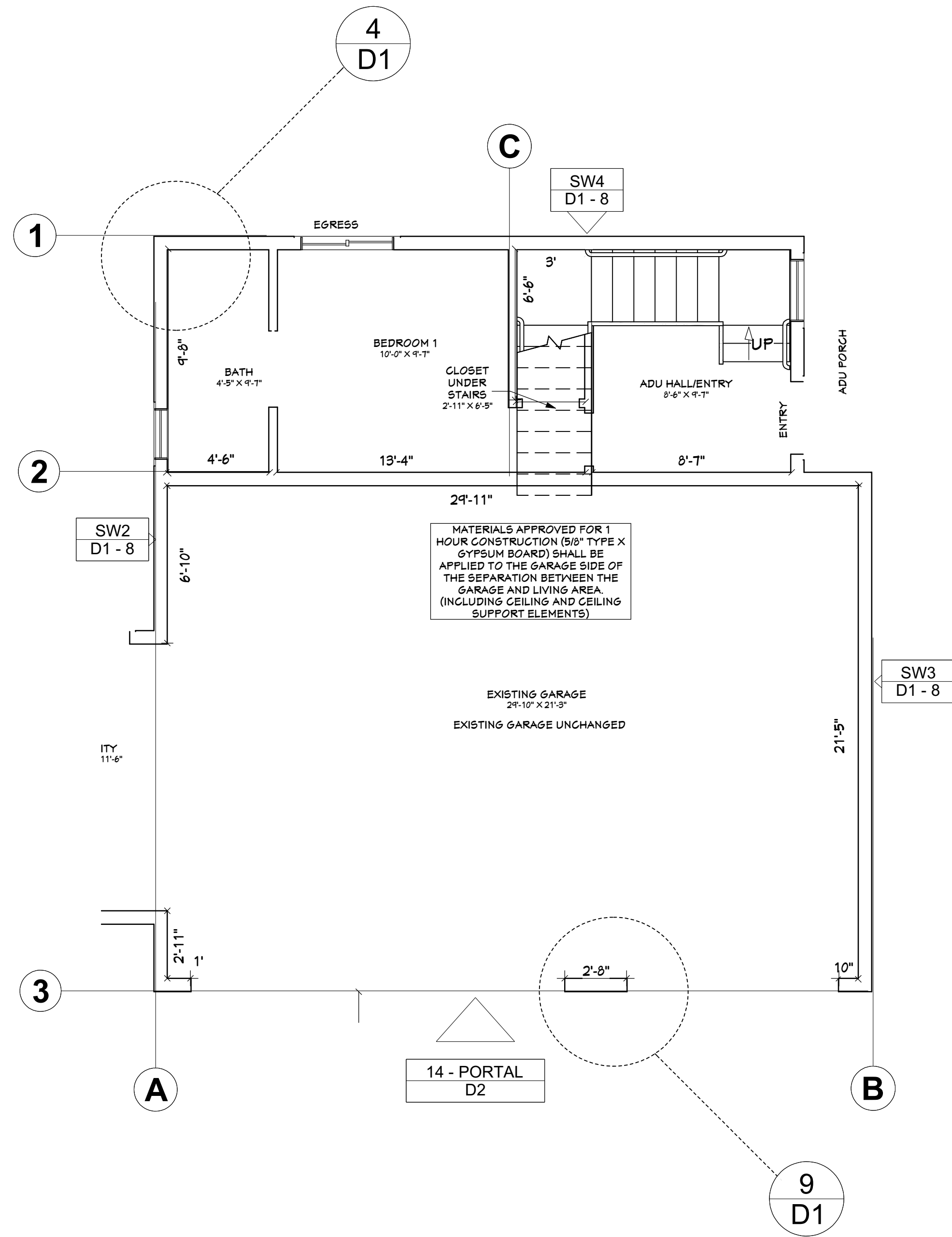
ROOF PLAN

**TOM & KIM TSO**  
 8902 SE 37th ST.  
 MERCER ISLAND WA 98040

KESH DESIGN LINES LLC

425 344 9906





**BRACED WALL PANELS: Per IRC 602.10.5**

Braced Wall Lines: A,B,C & 1,2,3

**CONTINUOUS OSB 24", 27" & 30" PANELS OVERLAP CORNERS**

**NAILS: ALL BRACED WALL SHEATHING NAILS SHALL BE COMMON NAILS ALL FRAMING NAILS SHALL BE COMMON NAILS. OR HOT DIPPED GALVANIZED BOX NAILS. FRAMING NAILS SHALL BE PER IBC TABLE 2304.4.1 OR IRC TABLE R602.3(1).**

**LUMBER STRENGTH (UNITS IN PSI)**

STUDS:	F <sub>b</sub>	F <sub>v</sub>
DOUG-FIR-LARCH #2	9000	1800
HEM-FIR #1	9150	1500
JOIST, RAFTERS (2X10)	9150	1500
HEM - FIR #2 (2X12)	9150	1500
BMS, HDRS, LINELS, GIRDERS (4X10)	9000	1800
4" NOMINAL DOUG-FIR #1	9000	1800
6" NOMINAL DOUG-FIR #1	9000	1800
GLUED LAMINATED TIMBERS:	2400	240
DOUG-FIR LARCH (24F-V3)	2400	240
MICRO-LAM LVL	2950	285

**TABLE R301.5  
MINIMUM UNIFORMLY DISTRIBUTED LIVE LOADS**  
(IN POUNDS PER SQUARE FOOT)

USE	LIVE LOAD
ATTICS WITH STORAGE <sup>1</sup>	50
ATTICS WITHOUT STORAGE <sup>1</sup>	10
DECK <sup>2</sup>	40
EXTERIOR BALCONIES	40
FIRE ESCAPES	40
GUARDRAILS AND HANDRAILS <sup>3</sup>	200
GUARDRAILS IN-FILL COMPONENTS <sup>3</sup>	80
PASSENGERS VEHICLE GARAGES <sup>4</sup>	80 <sup>4</sup>
ROOFS OTHER THAN SLEEPING ROOFS	40
SLEEPING ROOFS	30
STAIRS	40 <sup>5</sup>

FOR S1: 1 POUND PER SQUARE FOOT = 0.015625 kN/m<sup>2</sup>, SQUARE INCH = 6.4516 mm, 1 POUND = 4.448 N  
 A. ELEVATED GARAGE FLOORS SHALL BE CAPABLE OF SUPPORTING A 2,000-POUND LOAD APPLIED OVER A 20 SQUARE INCH AREA.  
 B. NO STORAGE WITH ROOF SLOPE NOT OVER 3 UNITS IN 12 UNITS.  
 C. INDIVIDUAL STAIR TREADS SHALL BE DESIGNED FOR THE UNIFORMLY DISTRIBUTED LIVE LOAD OR A 300 POUND CONCENTRATED LOAD ACTING OVER AN AREA OF 4 SQUARE INCHES WHICHEVER PRODUCES THE GREATER STRESSES.  
 D. A SINGLE CONCENTRATED LOAD APPLIED IN ANY DIRECTION AT ANY POINT ALONG THE TOP.  
 E. SEE SECTION R502.2.1 FOR DECKS ATTACHED TO EXTERIOR WALLS.  
 F. GUARD IN-FILL COMPONENTS (ALL THOSE EXCEPT THE HANDRAIL), BALUSTERS AND PANEL FILLERS SHALL BE DESIGNED TO WITHSTAND A HORIZONTALLY APPLIED NORMAL LOAD OF 50 POUNDS ON AN AREA EQUAL TO 1 SQUARE FOOT. THIS LOAD NEED NOT BE ASSUMED TO ACT CONCURRENTLY WITH ANY OTHER LIVE LOAD REQUIREMENT.

BOLT HEADS AND NUTS BEARING AGAINST WOOD TO BE PROVIDED WITH FLAT CUT WASHERS, WOOD BEARING ON OR INSTALLED WITHIN 1" OF MASONRY OR CONCRETE TO BE TREATED WITH AN APPROVED PRESERVATIVE. SOLID BLOCKING OF NOT LESS THAN 2 X THICKNESS SHALL BE PROVIDED AT ENDS AND AT ALL SUPPORT OF JOISTS AND RAFTERS. BETWEEN SUPPORTS PROVIDE BLOCKING OR APPROVED BRIDGING AT 8'-0" O.C. FOR FLOOR JOISTS, 10'-0" FOR ROOF JOISTS. TYPICAL SILL BOLTS TO BE 1/2" DIAMETER AT 4'-0" O.C. OR PER SHEAR WALL SCHEDULE. MINIMUM 1" EMBEDMENT. ALL METAL FRAMING ANCHORS AND HANGERS SHOWN ON DRAWINGS SHALL BE "STRONG TIE CONNECTORS" AS MANUFACTURED BY SIMPSON COMPANY OR APPROVED EQUAL.

**PLYWOOD**

PLYWOOD WALL AND ROOF SHEATHING SHALL BE 1/2" CDX OR 7/16" OSB. EXTERIOR GRADE, UNLESS OTHERWISE SPECIFIED. MINIMUM NAILING SHALL BE 8 PENNY # 6" O.C. @ PANEL EDGES AND 12" O.C. IN FIELD. SPAN INDEX SHALL BE 24/0. PLYWOOD FLOOR SHEATHING SHALL BE 3/4" CDX T&G (OR EQUAL), UNLESS OTHERWISE SPECIFIED. MINIMUM NAILING SHALL BE 10 PENNY AT 6" O.C. @ PANEL EDGES AND 10" O.C. IN FIELD. SPAN INDEX SHALL BE 40/20. STAGGER END LAPS AT ROOF AND FLOOR SHEATHING. ALL EDGES OF PLYWOOD IN FLOOR, ROOF AND WALLS SHALL BE SUPPORTED. PLYWOOD EDGES AT FLOOR AND ROOF SHALL BE SUPPORTED AT EDGES WITH CLIPS, BLOCKING OR OTHER APPROVED METHODS. PLYWOOD EDGES AT WALLS SHALL BE SUPPORTED BY FRAMING MEMBERS OR BLOCKING. OSB SHEATHING PRODUCTS OF EQUIVALENT SPAN RATINGS SHALL BE ALLOWED.

**STRUCTURAL GLUED-LAMINATED LUMBER**

SHALL BE DOUGLAS FIR FABRICATED TO THE REQUIREMENTS OF U.S. PRODUCT STANDARD PS 56. LUMBER SHALL BE OF SUCH GRADE TO PROVIDE NORMAL WORKING STRESS VALUES OF 2400 PSI IN BENDING; 1100 PSI IN TENSION; 1600 PSI IN COMPRESSION PARALLEL TO GRAIN; 560 PSI IN COMPRESSION PERPENDICULAR TO GRAIN AND 165 PSI HORIZONTAL SHEAR (COMBINATION 24F-V3). LAMINATED MEMBERS TO BE AITC CERTIFIED. USE WATERPROOF GLUE.

**NAILING NOTES: (PER IRC TABLE R602.3(1))**

- JOIST TO SILL OR GIRDER TOE NAIL (3)-8d
- BRIDGING TO JOIST TOE NAIL (4)-Bd
- SOLE PLATE TO JOIST OR BLK'G FACE NAIL (3)-10d
- STUD TO SOLE PLATE FACE NAIL (3)-10d
- TOP PLATE TO STUD TOE NAIL (2)-16d
- DOUBLE STUDS FACE NAIL (2)-Bd
- DOUBLE TOP PLATES 10d @24" OG
- CONTINUOUS HEADER, TWO PIECES (2)-16d@EA.BRG
- BUILT-UP HEADER, TWO PIECES EDGES 8d @ 6" OC
- W/ 112" SPACER INTERMEDIATE 8d @ 12" OG
- TOP PLATES, LAPS AND INTERSECTIONS EDGES Bd @ 6" OC
- CEILING JOISTS TO PLATE INTERMEDIATE 8d @ 12" OG
- CONTINUOUS HEADER TO STUD 16d NAILS
- CEILING JOISTS, LAPS OVER PARTITIONS 1/2" DIA M.B. W/ STANDARD NUT AND WASHERS
- CEILING JOISTS TO PARALLEL RAFTERS
- RAFTER TO PLATE
- 1" BRACE TO EACH STUD AND PLATE
- BUILT-UP CORNER STUDS
- 2" FLANKS
- 1/2" PLYWOOD ROOF AND WALL SHEATHING
- 3/4" PLYWOOD SUBFLOOR
- 2x MULTIPLE JOISTS - STAGGER@ 15" OG
- W/ (2) @ EA END OR SPLICE
- (3) OR FEWER
- (4) OR MORE



WINDOW SCHEDULE										
ROOM NAME	NUMBER	QTY	FLOOR	WIDTH	HEIGHT	EGRESS	TEMPERED	DESCRIPTION	U-FACTOR	3D EXTERIOR ELEVATION
BATH	W01	1	1	26"	48"			DOUBLE HUNG	0.28	
BEDROOM 1	W02	1	1	48"	48"	YES		LEFT SLIDING	0.28	
BATH	W03	1	2	32"	48"			DOUBLE HUNG	0.28	
ADU HALL/ENTRY	W05	1	1	32"	24"		YES	FIXED GLASS	0.28	
BEDROOM 2	W06	1	2	66"	48"	YES		RIGHT SLIDING	0.28	
GREAT	W07	2	2	66"	48"			RIGHT SLIDING	0.28	
OPEN BELOW PORCH BELOW	W08	2	2	32"	48"			FIXED GLASS	0.28	
GREAT	W09	2	2	21"	60"			SINGLE CASEMENT-HR	0.28	
OPEN BELOW	W10	1	2	72"	48"			FIXED GLASS	0.28	

**DOORS AND WINDOWS**

DOORS TO THE EXTERIOR SHALL HAVE MAX. 1 3/4" STEP TO MIN. 3/8" DEEP X (12" + OPERABLE DOOR WIDTH) MIN. LANDING ALL GLAZING TO BE PER WSEC TABLE 6-1 UNLESS NOTED OTHERWISE.  
 ALL SKYLIGHTS AND SKYWALLS TO BE SAFETY LAMINATED GLASS UNLESS NOTED OTHERWISE.  
 FRENCH DOORS TO BE DOUBLE GLAZED NON TESTED ASSUMED U VALUE OF .80, UNLESS NOTED OTHERWISE WITH SAFETY GLAZING.  
 FACTORY BUILT WINDOWS TO BE CONSTRUCTED TO PERMIT MAXIMUM INFILTRATION OF 0.5 CFM PER LINEAL FOOT OF OPERABLE SASH PERIMETER AS TESTED BY STANDARD ASTM E 283.13. SITE BUILT AND MILL WORK SHOP BUILT WOODEN SASH ARE EXEMPT FROM INFILTRATION CRITERIA ABOVE, BUT MUST BE MADE TIGHTLY FITTING AND WEATHER STRIPPED OR CAULKED.

SLIDING GLASS DOORS TO PERMIT MAXIMUM INFILTRATION OF 0.5 CFM INFILTRATION PER SQUARE FOOT OF DOOR AREA. EACH LIGHT SHALL BEAR THE MANUFACTURER'S LABEL DESIGNATING THE TYPE AND THICKNESS OF GLASS. IDENTIFICATION OF GLAZING, IN HAZARDOUS LOCATIONS SHALL BE IN ACCORDANCE WITH IRC SECTION (B) 308.4

PROVIDE SOLID CORE DOORS @ ENTRY AND FROM GARAGE TO LIVING AREAS ( AS WELL AS ANY OTHER DOORS TO THE EXTERIOR. PROVIDE SELF-CLOSURE DEVICE ON DOOR TO GARAGE PER IRC. SEE PLANS FOR:  
 - MAXIMUM GLAZING AREA  
 - GLAZING MFG. AND MODEL NUMBERS.  
 - WEIGHTED UA CALCULATION FOR SUB-STANDARD GLAZING.

SAFETY GLAZING LOCATIONS AS PER IRC SECTION (B) 308.4:  
 1. INGRESS AND EGRESS DOORS  
 2. SLIDING GLASS DOORS, SWINGING GLASS DOORS  
 3. SHOWER AND BATH TUB ENCLOSURES  
 4. GLAZING W/ THE EXPOSED EDGE WITHIN A 24" ARC OF EITHER VERTICAL EDGE OF A DOOR IN THE CLOSED POSITION, 4 BOTTOM EDGE IS LESS THAN 60" ABOVE THE WALKING SURFACE  
 5. GLAZING GREATER THAN 9 SF. LESS THAN 18" ABOVE FINISHED FLOOR  
 6. GLAZING IN GUARDRAILS  
 7. GLAZING IN STAIRWELLS AND WITHIN 3' OF TOP / BOTTOM OF STAIRS.

UNLESS NOTED OTHERWISE, INSULATION TO BE PER WSEC TABLE 6-1  
 INSULATION Baffles TO MAINTAIN 1" ABOVE INSULATION  
 Baffles TO EXTEND 6" ABOVE BATT INSULATION  
 Baffles TO EXTEND 12" ABOVE LOOSE FILL INSULATION  
 INSULATE BEHIND TUBS/SHOWERS, PARTITIONS AND CORNERS.  
 FACE STAPLE BATTS  
 FRICTION FIT FACED BATTS  
 USE 4 MIL POLY VAPOR RETARDER AT WALLS  
 USE PVA PAINT WITH A DRY CUP PERM RATING OF 1 MAX.

- WALLS BETWEEN HOUSE AND GARAGE HAVE TO HAVE R-21 UNO.  
 - FLOORS ABV CRAWL SPACES, GARAGE, OR AT CANTILEVERS OVER GRADE HAVE TO HAVE R-30 UNO.  
 - ALL ATTIC AT CEILING HAVE TO HAVE R-38 (MIN) UNO.  
 - PARTS IN UNHEATED SPACES HAVE TO HAVE R-5  
 - GAS WATER HEATERS SHALL MEET REQUIREMENTS OF 2012 UPC AND BE 60 LABELED.

**MISCELLANEOUS NOTES**

- GUARDRAILS TO BE 36" MIN. ABOVE FINISH FLOOR.
- HANDRAILS TO BE 34" - 38" ABOVE NOSING, WITH HANDGRIP OF 1 1/2" - 2" IN
- OPEN GUARDRAILS SHALL HAVE INTERMEDIATE RAILS OR ORNAMENTAL PATTERN SUCH THAT A SPHERE 4" IN DIAMETER CANNOT PASS THROUGH.
- ONE HOUR FIRE SEPARATIONS BETWEEN GARAGE AND DWELLING: INSTALL 1/2" TYPE-X ON ALL WALLS AND CEILING, BEARING WALLS. STAGGER JOINTS FROM PLYWOOD BELOW WHERE APPLICABLE.
- BEDROOM EMERGENCY EGRESS WINDOWS: MINIMUM NET CLEAR OPENING OF 5.7 SQ. FT. WIDTH OF 20" AND MINIMUM 24". MAXIMUM FINISHED SILL HEIGHT OF 44" ABOVE
- EACH SLEEPING ROOM SHALL BE PROVIDED W/ A SMOKE DETECTOR (INTERCONNECTED) PER SECTION (F) R313.1. SMOKE DETECTORS SHALL BE PROVIDED W/ A BATTERY BACK-UP. PER SEC. (F) R313.1 AND, LOCATED PER SECTION (F) R313.1.
- ANCHORED VENEER SHALL BE PROVIDED WITH #2 GA. X 3/4" CORROSION RESISTANT ANCHOR TIES. THE ANCHOR TIES SHALL BE SPACED A MAX. OF 24" O.C. AND SUPPORT NO MORE THAN 2 SQ. FT. OF VENEER. IN SEISMIC ZONE 3 & 4 THE EXTENDED LEG OF THE ANCHOR TIE SHALL LOOP AROUND A #3 GA. CONT. HORIZ. JOINT REINFORCEMENT WIRE.

**Table 406.2 Energy Credits (2015 Code)**

OPTION	DESCRIPTION	CREDITS	Estimated Cost
14	EFFICIENT HEATING SYSTEM (E) - Prescriptive compliance is based on Table R402.1.1 with the following modifications: Vertical Ventilation (V) - R-25 Slab on grade R-10 perimeter and under entire slab Before grade slab R-10 perimeter and under entire slab Compliance based on Section R402.1.4. Reduce the Total UA by 7%.	0.5	
15	EFFICIENT HEATING SYSTEM (E) - Prescriptive compliance is based on Table R402.1.1 with the following modifications: Vertical Ventilation (V) - R-25 Slab on grade R-10 perimeter and under entire slab Before grade slab R-10 perimeter and under entire slab Compliance based on Section R402.1.4. Reduce the Total UA by 17%.	1.0	
16	EFFICIENT HEATING SYSTEM (E) - Prescriptive compliance is based on Table R402.1.1 with the following modifications: Central Ventilation (V) - R-25 Wood frame wall R-21 per plus R-12 at Slab on grade R-10 perimeter and under entire slab Before grade slab R-10 perimeter and under entire slab Compliance based on Section R402.1.4. Reduce the Total UA by 30%.	2.0	
17	EFFICIENT HEATING SYSTEM (E) - Prescriptive compliance is based on Table R402.1.1 with the following modifications: Vertical Ventilation (V) - R-25 Central Ventilation (V) - R-25 Wood frame wall R-21 per plus R-12 at Slab on grade R-10 perimeter and under entire slab Before grade slab R-10 perimeter and under entire slab Compliance based on Section R402.1.4. Reduce the Total UA by 50%.	0.5	
18	ALL LEAKAGE CONTROL AND EFFICIENT VENTILATION (E) - Compliance based on R402.1.2. Reduce the total air leakage to 3.0 or charge per sq ft.	0.5	
19	ALL LEAKAGE CONTROL AND EFFICIENT VENTILATION (E) - All electric heat ventilation requirements as determined by Section M107.3 of the International Residential Code shall be met with a high efficiency fan system (0.5 watts per CFM) or less. To qualify to claim this credit, the building permit drawings shall specify the option being selected and shall specify the maximum tested building air leakage and shall show the location of the ventilation system.	1.0	

**Table 406.2 Energy Credits (2015 Code)**

OPTION	DESCRIPTION	CREDITS	Estimated Cost
5a	EFFICIENT WATER HEATING (E) - All showerheads and kitchen sink faucets installed in the house shall be rated at 1.75 GPM or less. All other fixture faucets shall be rated at 1.0 GPM or less. To qualify to claim this credit, the building permit drawings shall specify the option being selected and shall specify the maximum flow rates for all showerheads, kitchen sink faucets, and other fixture faucets.	0.5	
5b	EFFICIENT WATER HEATING (E) - Water heating system shall include one of the following: Gas, propane or oil water heater with a minimum EF of 0.74 Water heater heated by ground source heat pump meeting the requirements of Option 3c. For R-2 occupancy, a central heat pump water heater with an EF greater than 2.0 that would supply DHW to all the units through a central water loop insulated with R-8 minimum pipe insulation. To qualify to claim this credit, the building permit drawings shall specify the option being selected and shall specify the water heater equipment type and the minimum equipment efficiency.	1.0	
5c	EFFICIENT WATER HEATING (E) - Water heating system shall include one of the following: Gas, propane or oil water heater with a minimum EF of 0.91 Solar water heating supplementing a minimum standard water heater. Solar water heating will provide a rated minimum savings of 85 percent or 2000 kWh based on the Solar Rating and Certification Corporation (SRCC) Annual Performance of OCG-300 Certified Solar Water Heating System. Electric heat pump water heater with a minimum EF of 2.0 and meeting the standards of NEEA's Northern Climate Specifications for Heat Pump Water Heaters. To qualify to claim this credit, the building permit drawings shall specify the option being selected and shall specify the water heater equipment type and the minimum equipment efficiency and, for solar water heating systems, the calculation of the minimum energy savings.	1.5	
5d	EFFICIENT WATER HEATING (E) - A drain water heat recovery system shall be installed, which captures waste water heat from all the showers, and has a minimum efficiency of 40% if installed for equal flow or a minimum efficiency of 55% if installed for unequal flow. Such units shall be rated in accordance with CSA B55.1 and be so labeled. To qualify to claim this credit, the building permit drawings shall include a plumbing diagram that specifies the drain water heat recovery units and the plumbing layout documents to install it and labels and other documentation shall be provided that demonstrates that the unit complies with the standard.	0.5	

**Table 406.2 Energy Credits (2015 Code)**

OPTION	DESCRIPTION	CREDITS	Estimated Cost
3	ALL LEAKAGE CONTROL AND EFFICIENT VENTILATION (E) - Compliance based on Section R402.1.2. Reduce the total air leakage to 3.0 or charge per sq ft. All electric heat ventilation requirements as determined by Section M107.3 of the International Residential Code shall be met with a high efficiency fan system with maximum tested building air leakage of 0.85. To qualify to claim this credit, the building permit drawings shall specify the option being selected and shall specify the maximum tested building air leakage and shall show the location of the ventilation system.	1.5	
3a	EFFICIENT WATER HEATING (E) - Gas, propane or oil water heater with a minimum AFUE of 90%, or Gas, propane or oil water heater with a minimum AFUE of 90%. To qualify to claim this credit, the building permit drawings shall specify the option being selected and shall specify the heating equipment type and the minimum equipment efficiency.	1.0	
3b	EFFICIENT WATER HEATING (E) - Electric heat pump water heater with a minimum COP of 2.0. To qualify to claim this credit, the building permit drawings shall specify the option being selected and shall specify the heating equipment type and the minimum equipment efficiency.	1.0	
3c	EFFICIENT WATER HEATING (E) - Open loop ground source heat pump with a minimum COP of 3.0. To qualify to claim this credit, the building permit drawings shall specify the option being selected and shall specify the heating equipment type and the minimum equipment efficiency.	1.5	
3d	EFFICIENT WATER HEATING (E) - Solar water heating supplementing a minimum standard water heater. Solar water heating will provide a rated minimum savings of 85 percent or 2000 kWh based on the Solar Rating and Certification Corporation (SRCC) Annual Performance of OCG-300 Certified Solar Water Heating System. To qualify to claim this credit, the building permit drawings shall specify the option being selected and shall specify the heating equipment type and the minimum equipment efficiency.	1.0	
4	EFFICIENT DISTRIBUTION SYSTEM (E) - All heating and cooling system components installed inside the conditioned space. This includes equipment and distribution system components such as ductwork and pipes, registers, grilles, radiators, convectors and radiators. All ductwork and piping shall be sealed and shall specify the sealing equipment type and the minimum equipment efficiency. For forced air ducts, a minimum of 100 ft of ductwork and a total heat loss of 1000 Btu shall be limited inside the conditioned space. All ductwork shall be tested and sealed to the conditioned space per the manufacturer's instructions. For ductwork tested and sealed to the conditioned space, the test results shall be provided with the permit drawings. If the ductwork is not tested and sealed to the conditioned space, the test results shall be provided with the permit drawings. Ducts located outside the conditioned space shall be insulated to a minimum of R-5. Leaking system components in conditioned space shall be repaired under the permit. Ductwork installed heat and ductwork heat pumps are not permitted under this option. Ductwork installed heat and ductwork heat pumps with AFUE less than 80% is not permitted under this option. To qualify to claim this credit, the building permit drawings shall specify the option being selected and shall specify the heating equipment type and shall show the location of the heating and cooling equipment and the ductwork.	1.0	

**Table 406.2 Energy Credits (2015 Code)**

OPTION	DESCRIPTION	CREDITS	Estimated Cost
6	RENEWABLE ELECTRIC ENERGY (E) - For each 1200 kWh of electrical generation per each housing unit provided annually by on-site wind or solar equipment a 0.5 credit shall be allowed, up to 3 credits. Generation shall be calculated as follows: For solar electric systems, the design shall be demonstrated to meet this requirement using the National Renewable Energy Laboratory calculator PVWATTS. Documentation showing solar access shall be included on the plans. For wind generation projects designs shall document annual power generation based on the following factors: The wind turbine power curve, average annual wind speed at the site, frequency distribution of the wind speed at the site and height of the tower. To qualify to claim this credit, the building permit drawings shall specify the option being selected and shall show the photos/video or wind turbine equipment type, provide documentation of solar and wind access, and include a calculation of the minimum annual energy power production.	0.5	

**2015 WSEC Residential Energy Compliance Certificate**

Property Address: 8802 SE 37th ST. MERCER ISLAND WA 98040

Conditioned Floor Area: 900 SF Date: 05 / 26 / 20

Builder or registered design professional :  
KESH CHAYDA

Signature: Kesh Chayda

**R-Values**

Ceiling: Vaulted R-          Floors: Over unconditioned space R- 38  
 Attic R- 38 Slab on grade floor R- 10

Walls: Above grade R- 21 Doors:          R-           
 Below, int. R- 21          R-           
 Below, ext. R- 21          R-         

**U-Factors and SHGC**

NFRC rating (or) Windows U- 0.28 SHGC- N/A  
 Default rating (Appendix A WSEC 2015) Skylights U-          SHGC- N/A

Table 406.2 Option(s) 1b, 5b & 2c Total 406.2 Credits 3.5

**Heating, Cooling & Domestic Hot Water**

System	Type	Efficiency
Heating	Ductless Heat Pump & Electric Wall Heaters	HSPF 9
Cooling		
DHW	Electric Tank Less Water Heater	EF-2

**Duct & Building Air Leakage**

All ducts & HVAC in conditioned space (yes / no) Insulation R- 8

Air handler present (yes / no)

Test Target          CFM@25Pa Test Result          CFM@25Pa

Building air leakage target: ACH<sub>50</sub> < 5.0 - Tested leakage: ACH<sub>50</sub> =         

**Onsite Renewable Energy Electric Power System**

System type:          Rated annual generation          Kwh

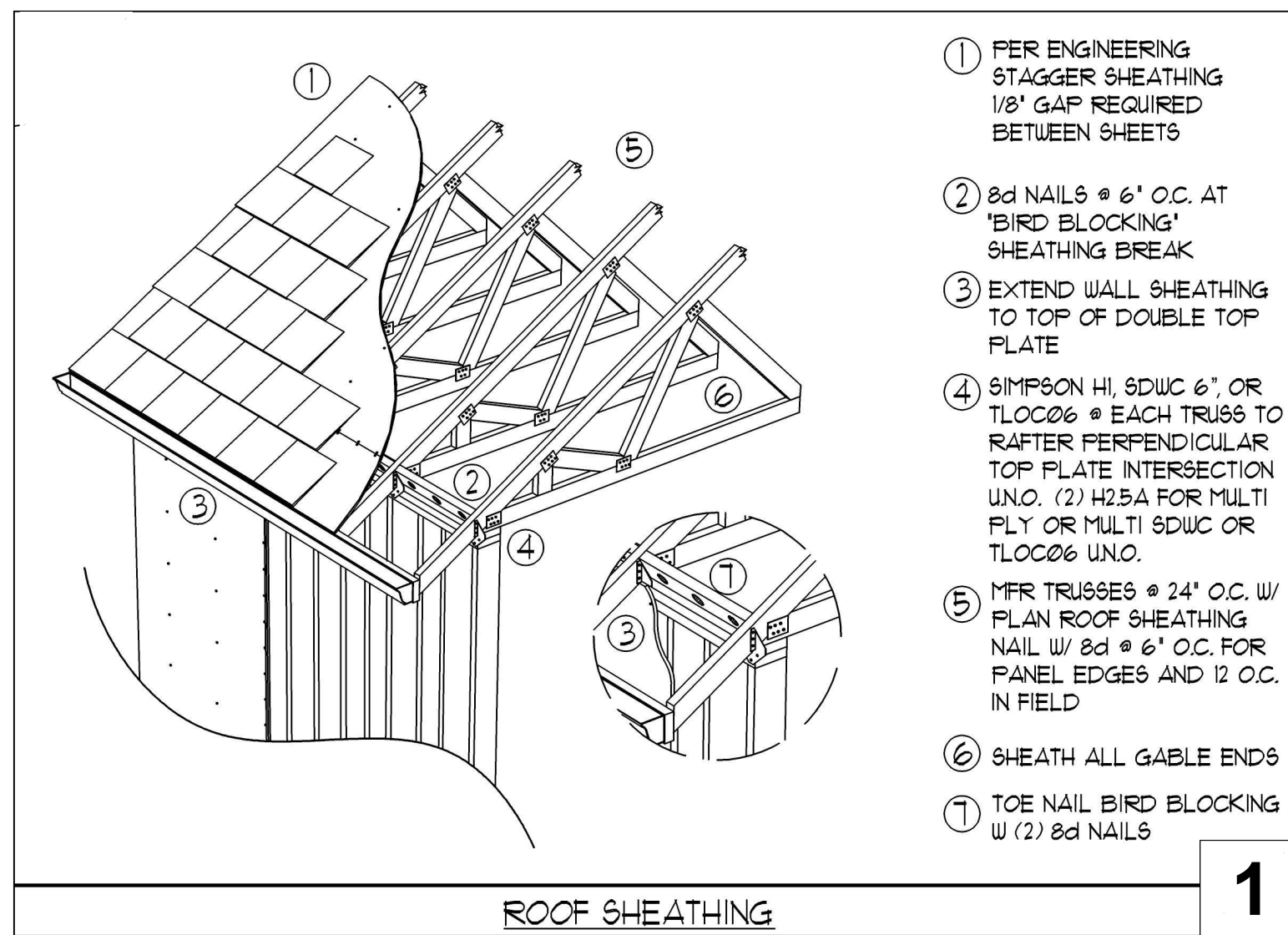
SHEET NUMBER  
**A13**  
Revision #:

DATE: 06.12.20  
DRAWN BY: K.C.

**WINDOW SCHEDULE ENERGY CALCS.**

**TOM & KIM TSO**  
8802 SE 37th ST.  
MERCER ISLAND WA 98040

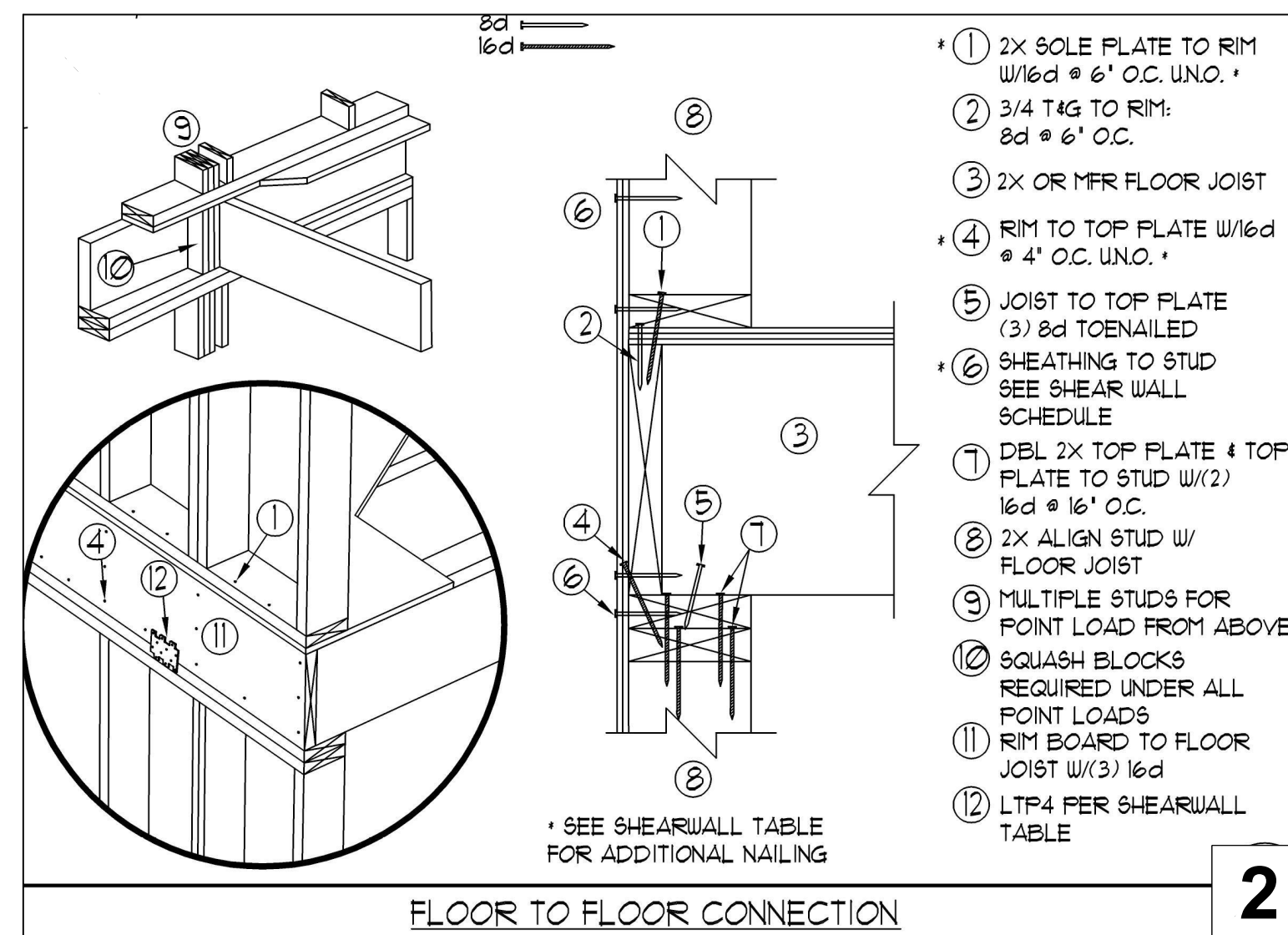
**KESH DESIGN LINES LLC**  
425 344 9906



ROOF SHEATHING

1

- 1 PER ENGINEERING STAGGER SHEATHING 1/8" GAP REQUIRED BETWEEN SHEETS
- 2 2d NAILS @ 6" O.C. AT "BIRD BLOCKING" SHEATHING BREAK
- 3 EXTEND WALL SHEATHING TO TOP OF DOUBLE TOP PLATE
- 4 SIMPSON HJ SDUC @ 6" OR TLOC@ @ EACH TRUSS TO RAFTER PERPENDICULAR TOP PLATE INTERSECTION UNO. (2) H25A FOR MULTI FLY OR MULTI SDUC OR TLOC@ UNO.
- 5 MFR TRUSSES @ 24" O.C. W/ PLAN ROOF SHEATHING NAIL W/ 2d @ 6" O.C. FOR PANEL EDGES AND 12" O.C. IN FIELD
- 6 SHEATH ALL GABLE ENDS
- 7 TOE NAIL BIRD BLOCKING W/ (2) 2d NAILS

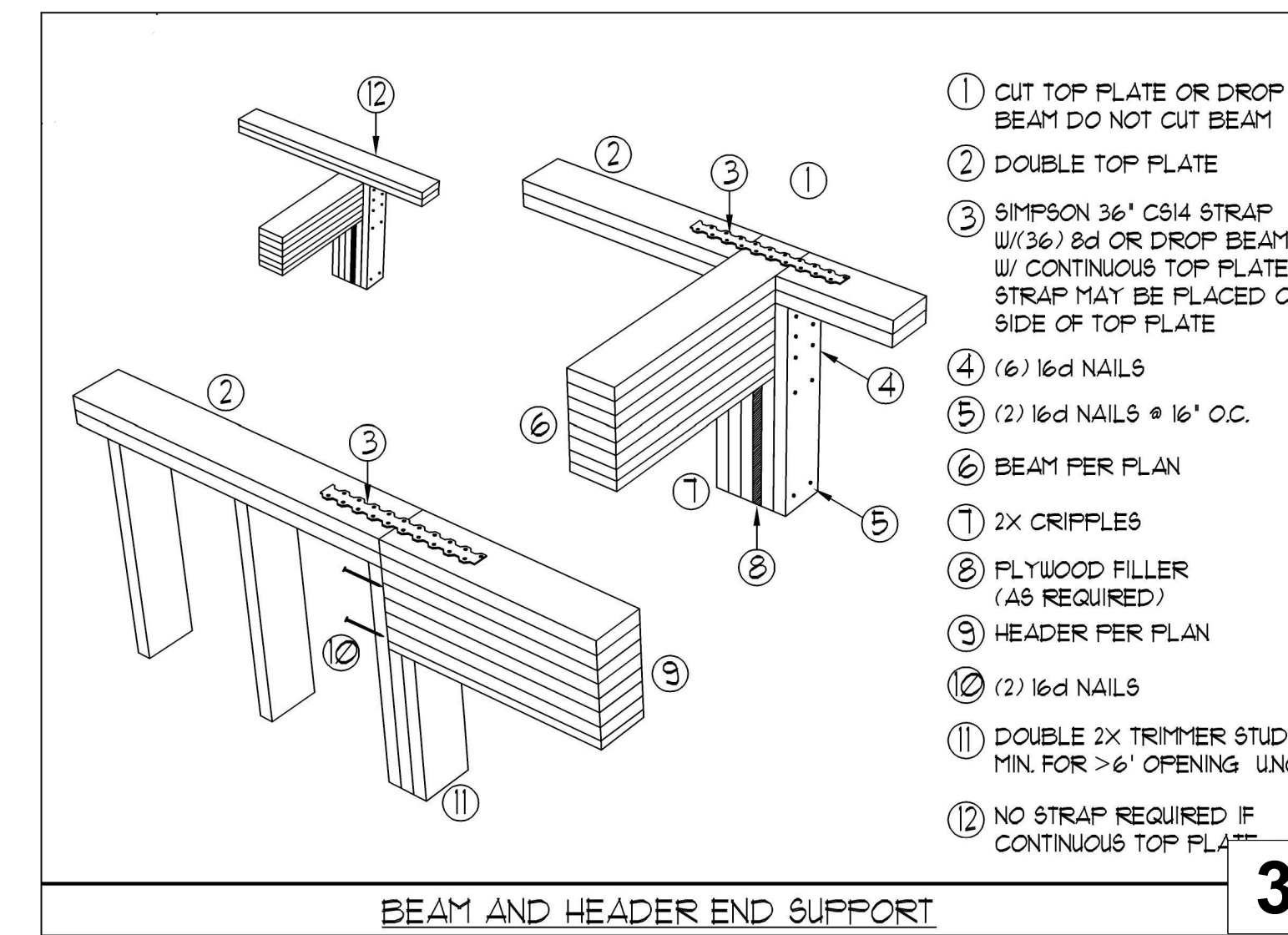


FLOOR TO FLOOR CONNECTION

2

- 1 2X SOLE PLATE TO RIM W/16d @ 6" O.C. UNO.
- 2 3/4 T&G TO RIM: 2d @ 6" O.C.
- 3 2X OR MFR FLOOR JOIST
- 4 RIM TO TOP PLATE W/16d @ 4" O.C. UNO.
- 5 JOIST TO TOP PLATE (3) 2d TOENAIL
- 6 SHEATHING TO STUD SEE SHEAR WALL SCHEDULE
- 7 DBL 2X TOP PLATE & TOP PLATE TO STUD W/ (2) 16d @ 16" O.C.
- 8 2X ALIGN STUD W/ FLOOR JOIST
- 9 MULTIPLE STUDS FOR POINT LOAD FROM ABOVE
- 10 SQUASH BLOCKS REQUIRED UNDER ALL POINT LOADS
- 11 RIM BOARD TO FLOOR JOIST W/ (3) 16d
- 12 LTP4 PER SHEARWALL TABLE

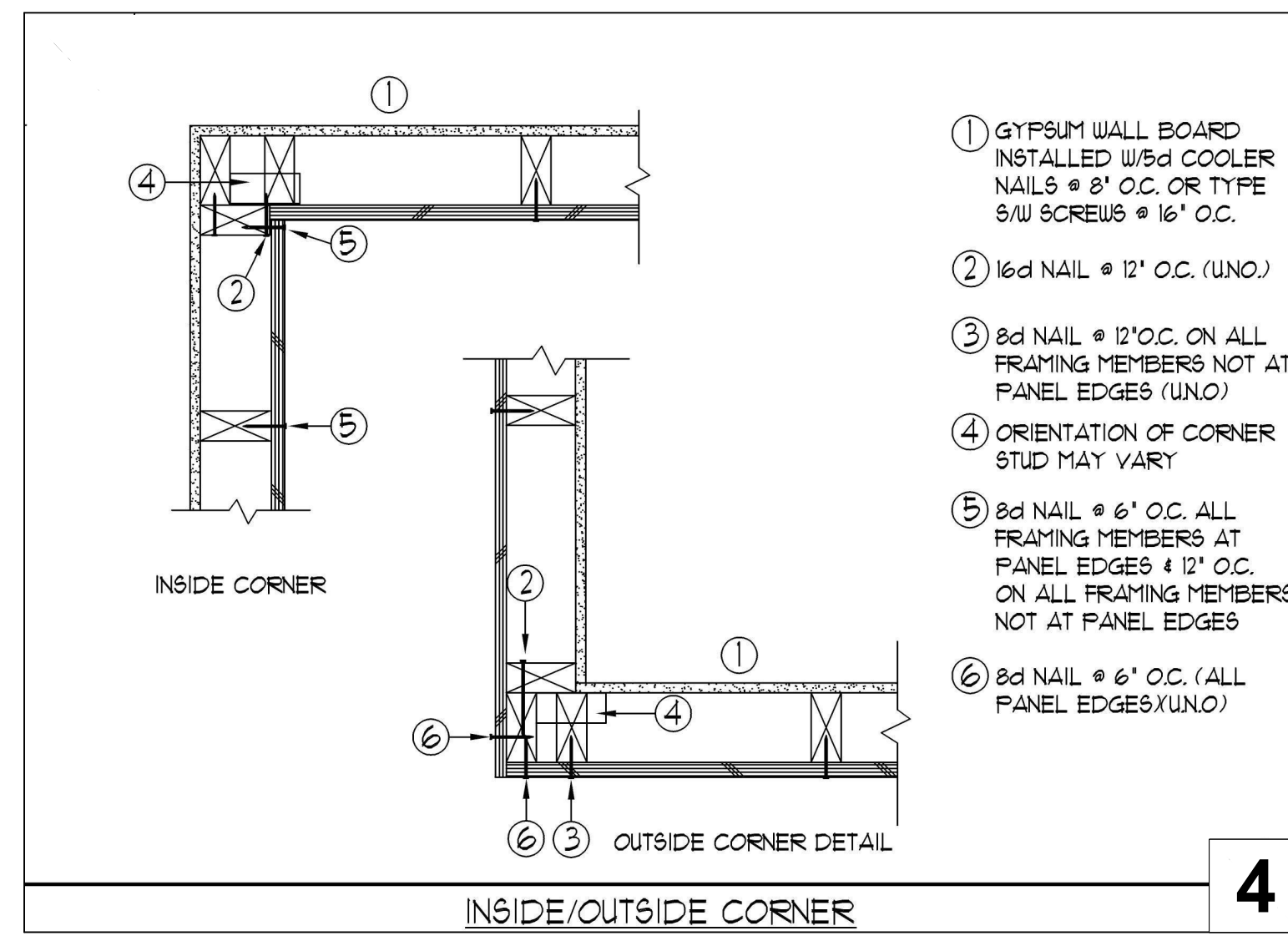
\* SEE SHEARWALL TABLE FOR ADDITIONAL NAILING



BEAM AND HEADER END SUPPORT

3

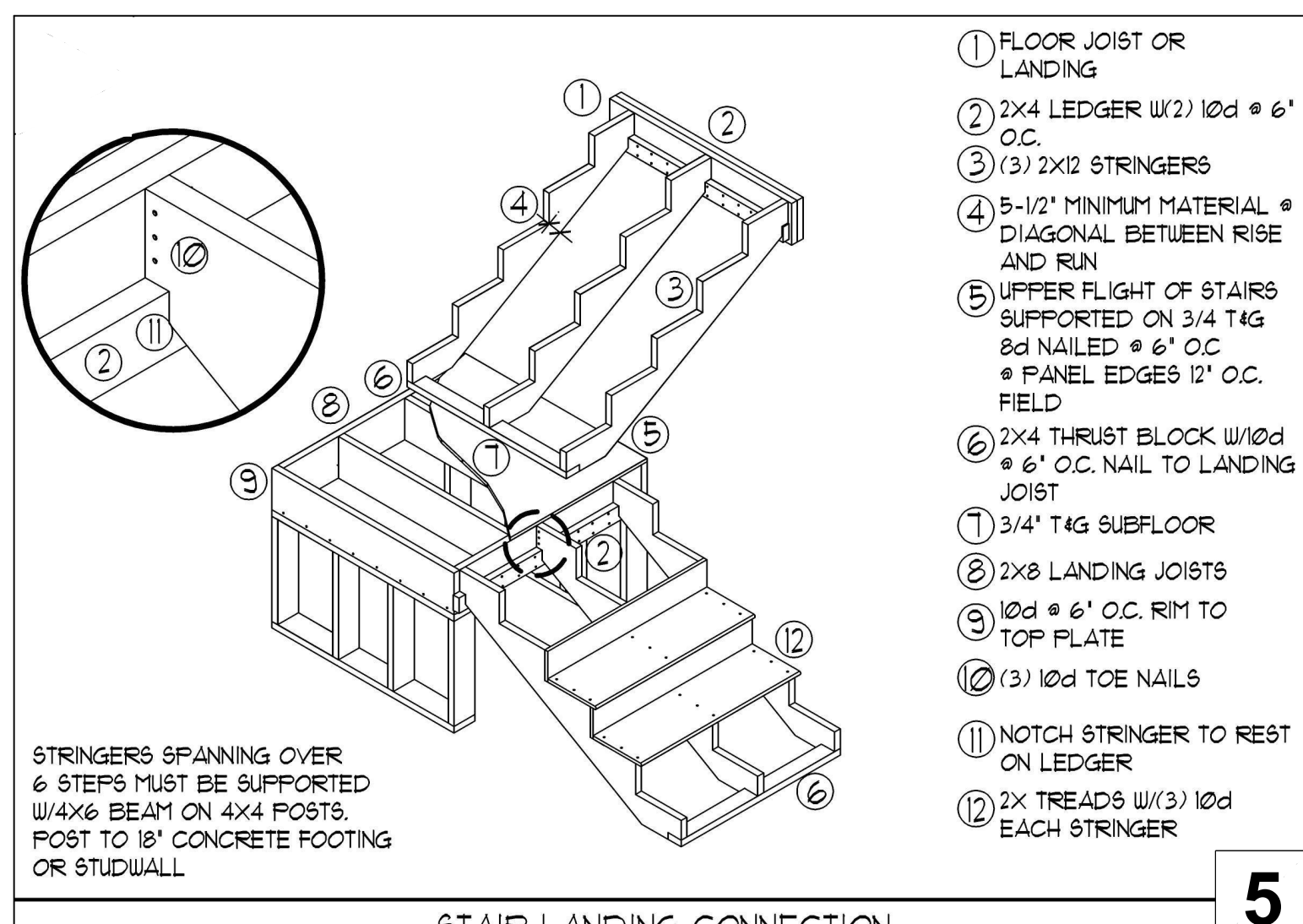
- 1 CUT TOP PLATE OR DROP BEAM DO NOT CUT BEAM
- 2 DOUBLE TOP PLATE
- 3 SIMPSON 36" CS14 STRAP W/ (36) 2d OR DROP BEAM W/ CONTINUOUS TOP PLATE. STRAP MAY BE PLACED ON SIDE OF TOP PLATE
- 4 (16) 16d NAILS
- 5 (2) 16d NAILS @ 16" O.C.
- 6 BEAM PER PLAN
- 7 2X CRIPPLES
- 8 PLYWOOD FILLER (AS REQUIRED)
- 9 HEADER PER PLAN
- 10 (2) 16d NAILS
- 11 DOUBLE 2X TRIMMER STUDS MIN. FOR > 6" OPENING UNO.
- 12 NO STRAP REQUIRED IF CONTINUOUS TOP PLATE



INSIDE/OUTSIDE CORNER

4

- 1 GYPSUM WALL BOARD INSTALLED W/ 2d COOLER NAILS @ 8" O.C. OR TYPE 5W/ SCREWS @ 16" O.C.
- 2 16d NAIL @ 12" O.C. (UNO.)
- 3 2d NAIL @ 12" O.C. ON ALL FRAMING MEMBERS NOT AT PANEL EDGES (UNO.)
- 4 ORIENTATION OF CORNER STUD MAY VARY
- 5 2d NAIL @ 6" O.C. ALL FRAMING MEMBERS AT PANEL EDGES @ 12" O.C. ON ALL FRAMING MEMBERS NOT AT PANEL EDGES
- 6 2d NAIL @ 6" O.C. (ALL PANEL EDGES/UNO.)

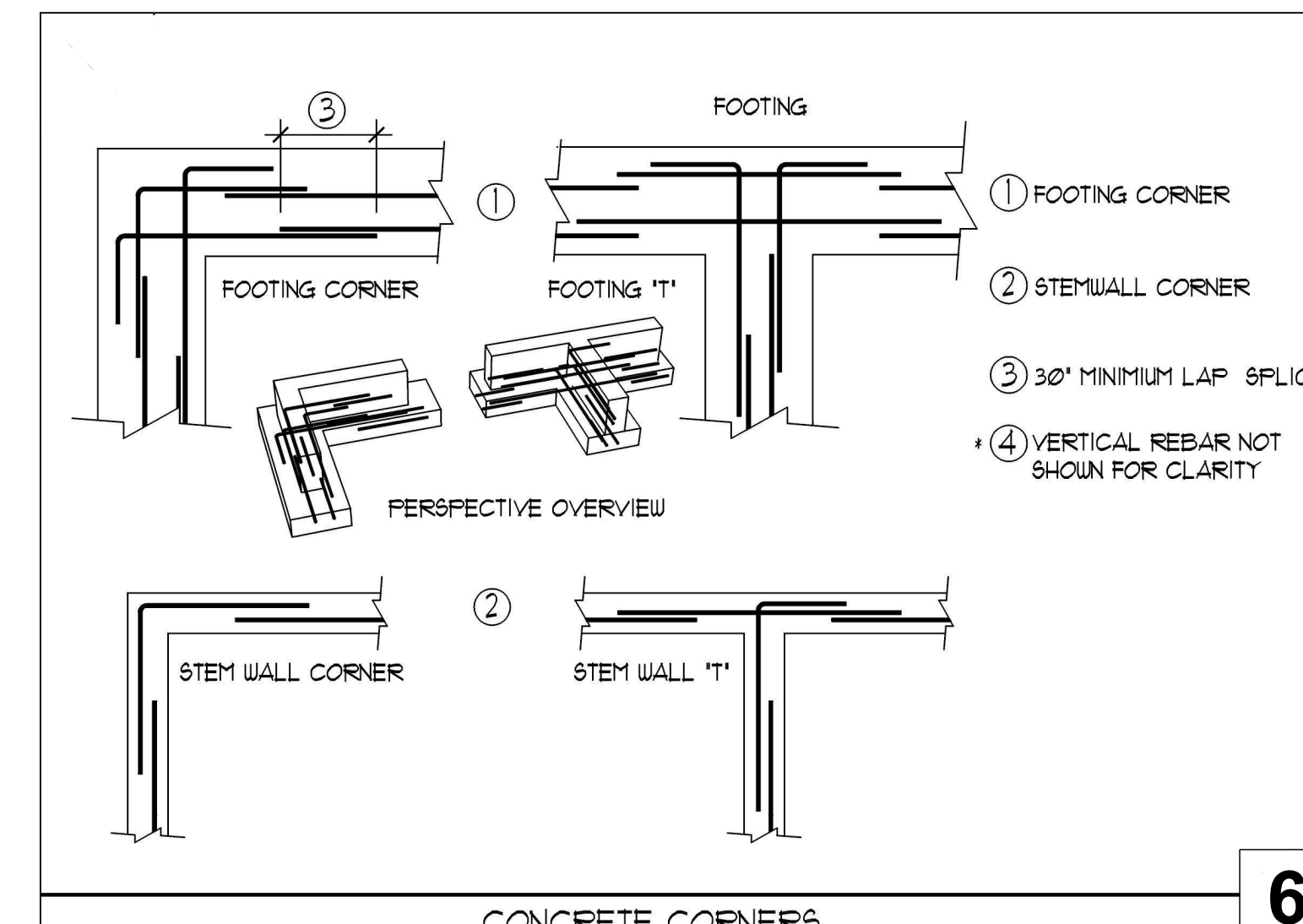


STAIR LANDING CONNECTION

5

- 1 FLOOR JOIST OR LANDING
- 2 2X4 LEDGER W/ (2) 10d @ 6" O.C.
- 3 (3) 2X12 STRINGERS
- 4 5-1/2" MINIMUM MATERIAL @ DIAGONAL BETWEEN RISE AND RUN
- 5 UPPER FLIGHT OF STAIRS SUPPORTED ON 3/4 T&G 2d NAIL @ 6" O.C. @ PANEL EDGES 12" O.C. FIELD
- 6 2X4 THRUST BLOCK W/ 10d @ 6" O.C. NAIL TO LANDING JOIST
- 7 3/4" T&G SUBFLOOR
- 8 2X8 LANDING JOISTS
- 9 10d @ 6" O.C. RIM TO TOP PLATE
- 10 (3) 10d TOE NAILS
- 11 NOTCH STRINGER TO REST ON LEDGER
- 12 2X TREADS W/ (3) 10d EACH STRINGER

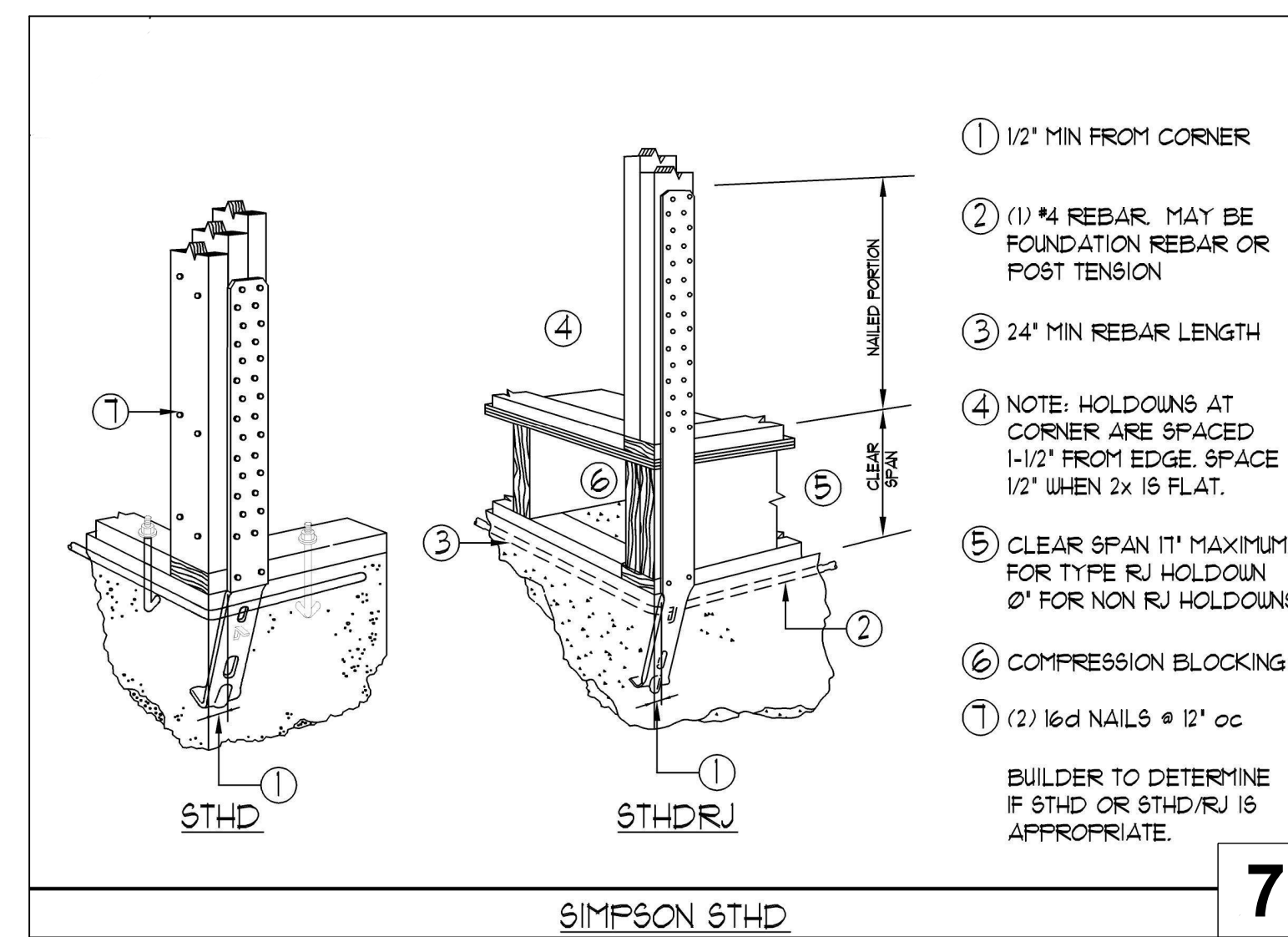
STRINGERS SPANNING OVER 6 STEPS MUST BE SUPPORTED W/ 4X6 BEAM ON 4X4 POSTS. POST TO 18" CONCRETE FOOTING OR STUDWALL



CONCRETE CORNERS

6

- 1 FOOTING CORNER
- 2 STEM WALL CORNER
- 3 30" MINIMUM LAP SPLICE
- 4 VERTICAL REBAR NOT SHOWN FOR CLARITY

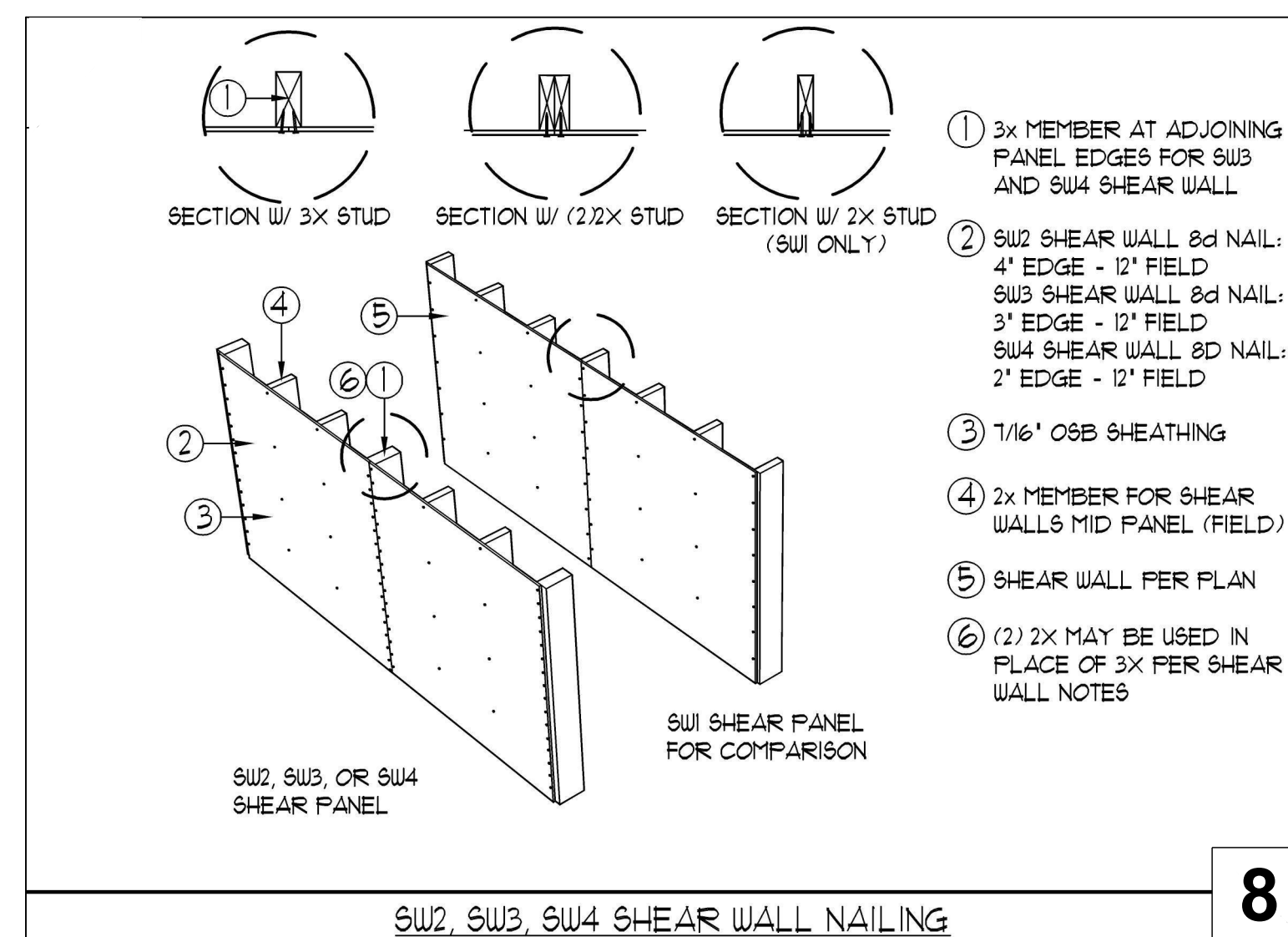


SIMPSON 6THD

7

- 1 1/2" MIN FROM CORNER
- 2 (1) #4 REBAR. MAY BE FOUNDATION REBAR OR POST TENSION
- 3 24" MIN REBAR LENGTH
- 4 NOTE: HOLDDOWNS AT CORNER ARE SPACED 1-1/2" FROM EDGE. SPACE 1/2" WHEN 2x IS FLAT.
- 5 CLEAR SPAN 1" MAXIMUM. FOR TYPE RJ HOLDDOWN 0" FOR NON RJ HOLDDOWNS
- 6 COMPRESSION BLOCKING
- 7 (2) 16d NAILS @ 12" oc

BUILDER TO DETERMINE IF 6THD OR 6THDRJ IS APPROPRIATE.



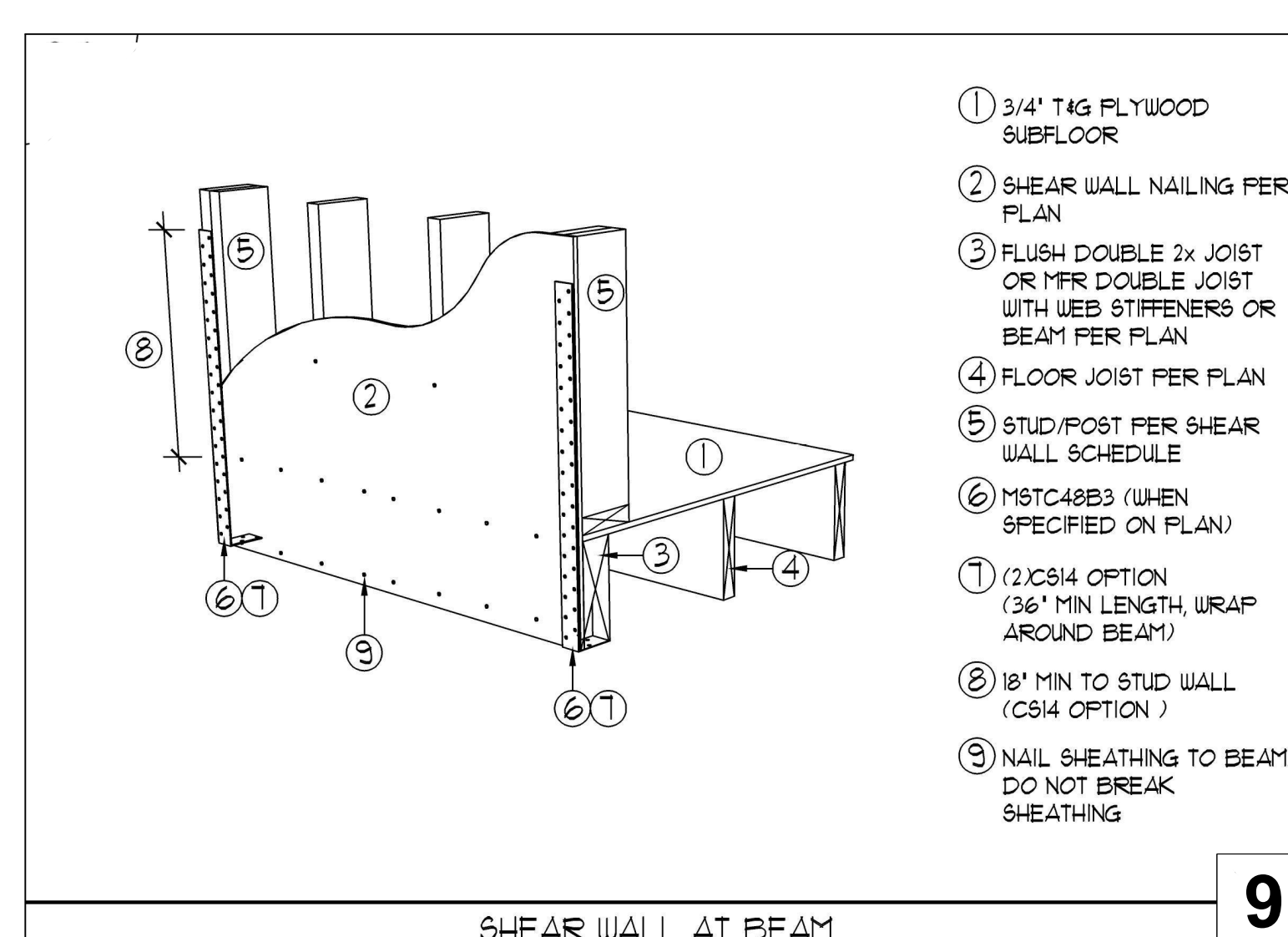
SW2, SW3, SW4 SHEAR WALL NAILING

8

- 1 3X MEMBER AT ADJOINING PANEL EDGES FOR SW3 AND SW4 SHEAR WALL
- 2 SW2 SHEAR WALL 2d NAIL: 4" EDGE - 12" FIELD  
SW3 SHEAR WALL 2d NAIL: 3" EDGE - 12" FIELD  
SW4 SHEAR WALL 2d NAIL: 2" EDGE - 12" FIELD
- 3 1/16" OSB SHEATHING
- 4 2X MEMBER FOR SHEAR WALLS MID PANEL (FIELD)
- 5 SHEAR WALL PER PLAN
- 6 (2) 2X MAY BE USED IN PLACE OF 3X PER SHEAR WALL NOTES

SECTION W/ 3X STUD SECTION W/ (2) 2X STUD SECTION W/ 2X STUD (SW1 ONLY)

SW1 SHEAR PANEL FOR COMPARISON

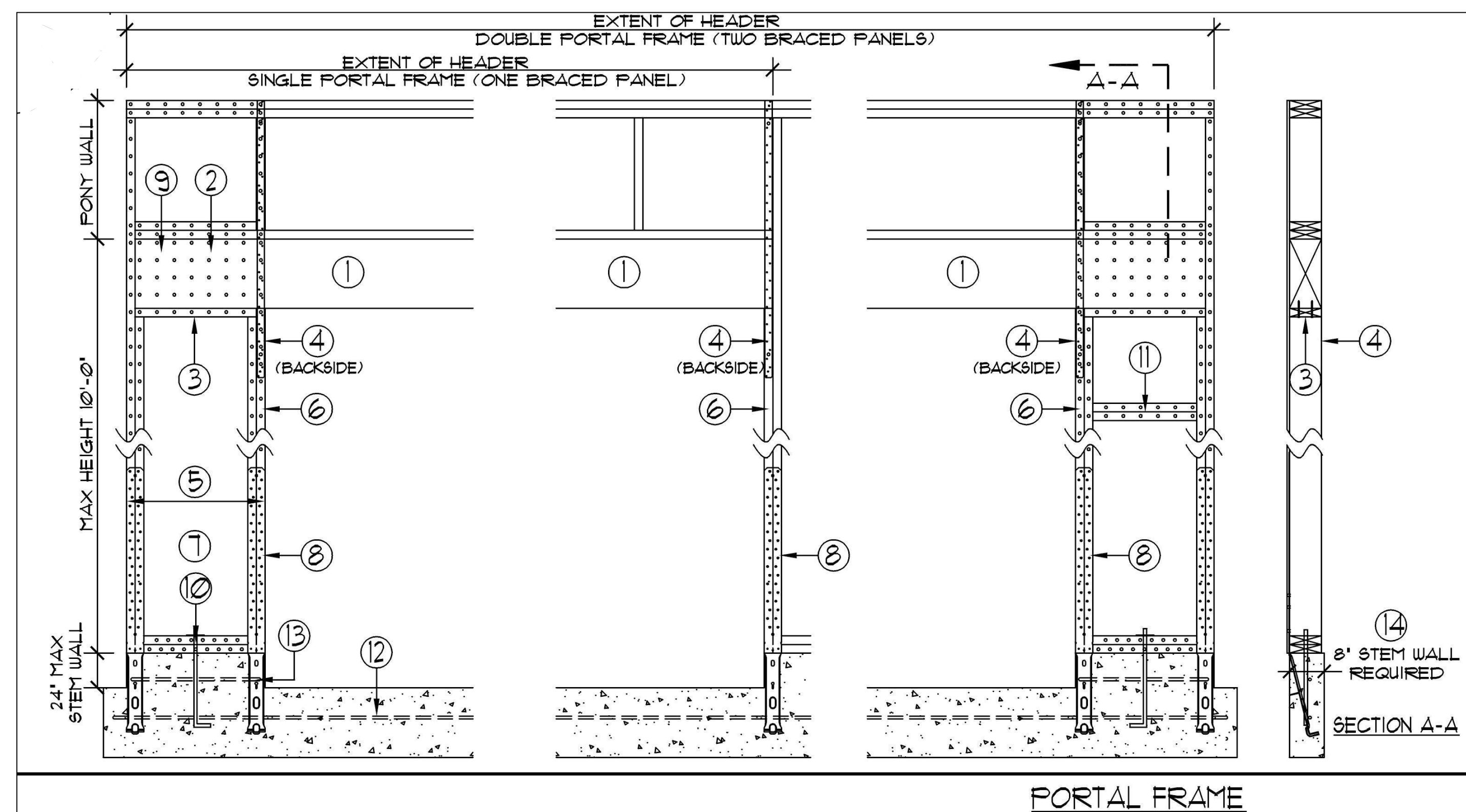
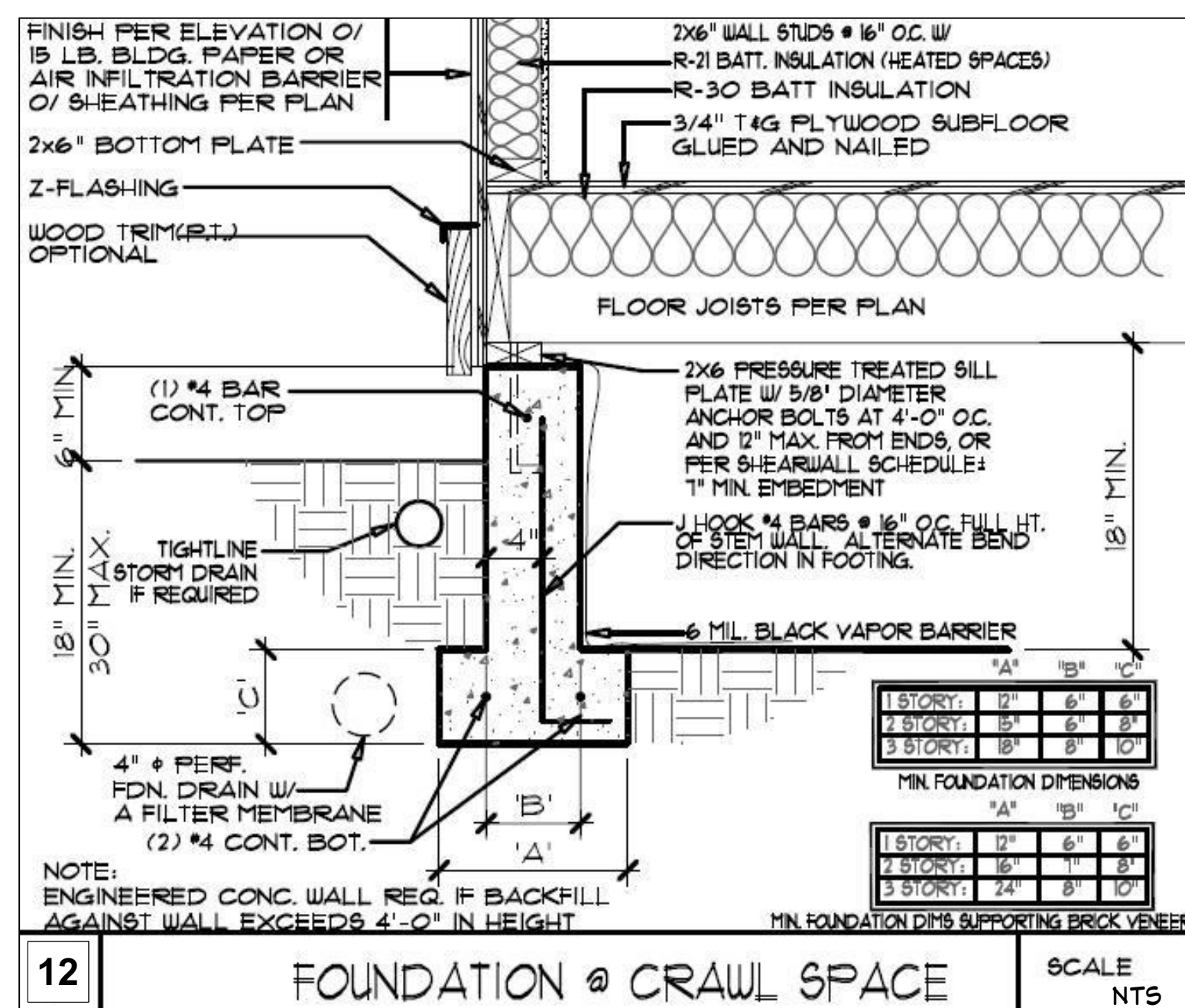
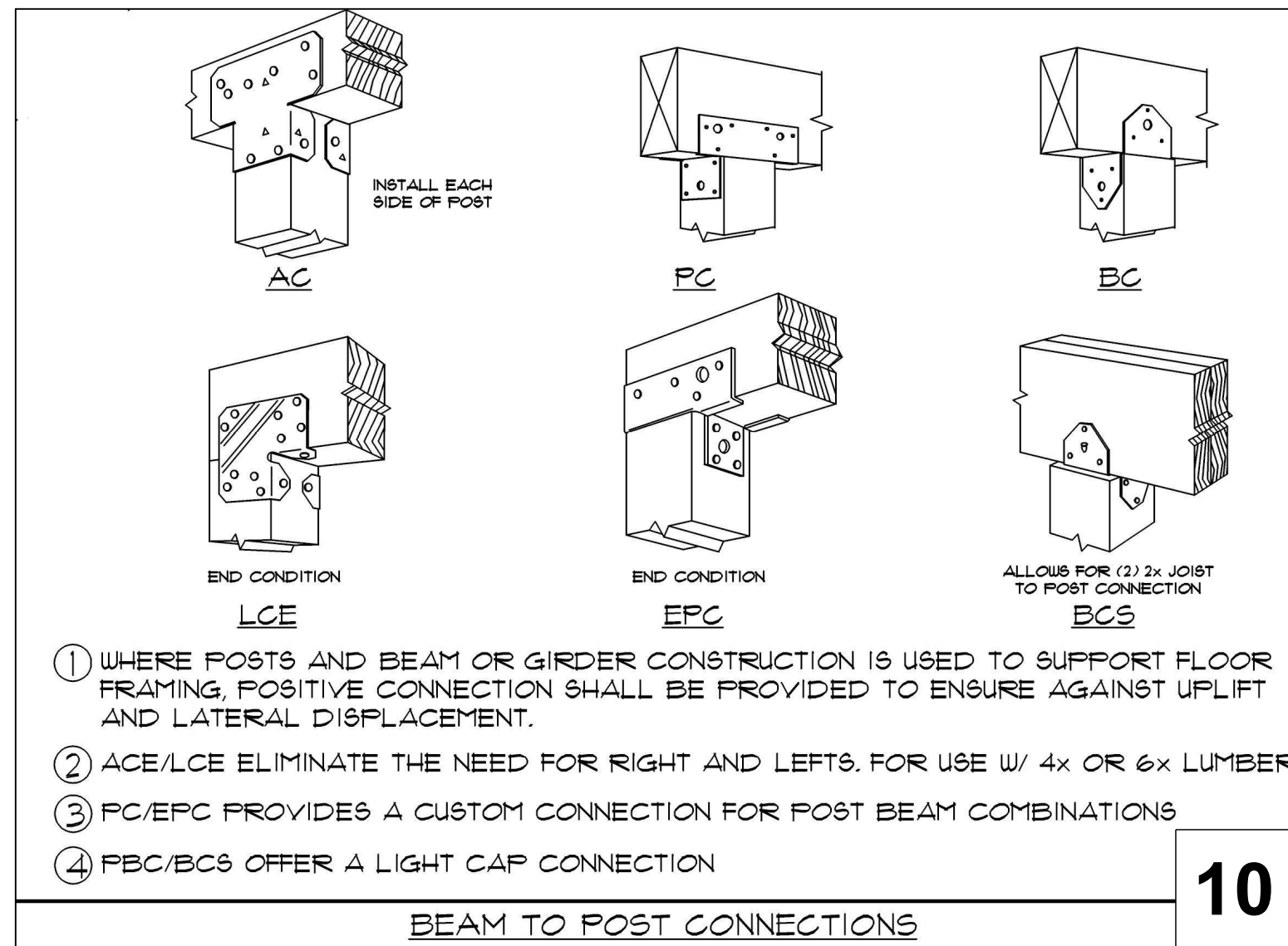


SHEAR WALL AT BEAM

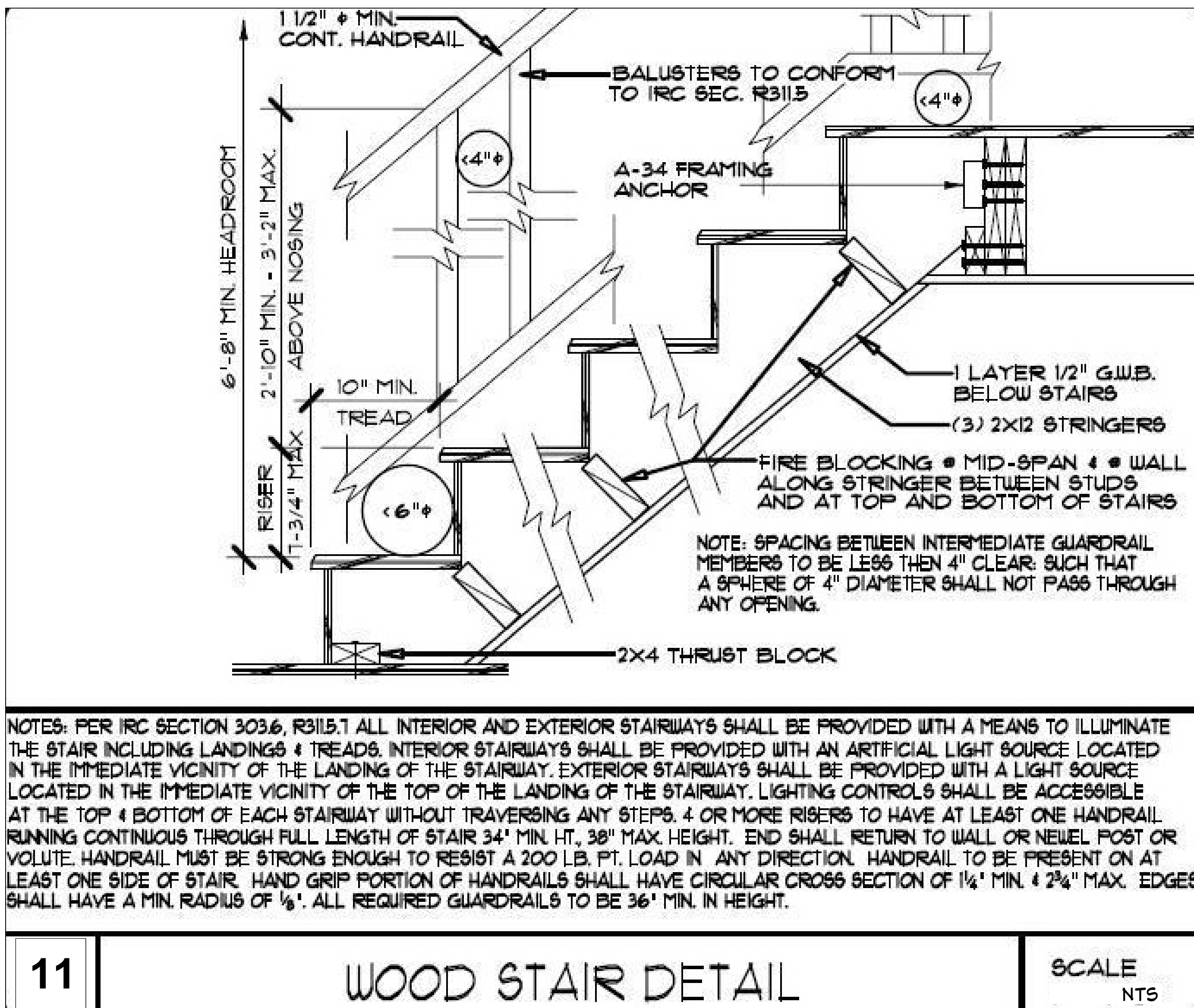
9

- 1 3/4" T&G FLYWOOD SUBFLOOR
- 2 SHEAR WALL NAILING PER PLAN
- 3 FLUSH DOUBLE 2X JOIST OR MFR DOUBLE JOIST WITH WEB STIFFENERS OR BEAM PER PLAN
- 4 FLOOR JOIST PER PLAN
- 5 STUD/POST PER SHEAR WALL SCHEDULE
- 6 MSTC48B3 (WHEN SPECIFIED ON PLAN)
- 7 (2) CS14 OPTION (36" MIN LENGTH, WRAP AROUND BEAM)
- 8 18" MIN TO STUD WALL (CS14 OPTION)
- 9 NAIL SHEATHING TO BEAM. DO NOT BREAK SHEATHING





- FOR SHEAR MIN. 3"x11/2" NET HEADER REQUIRED. (MAY BE LARGER)
- FASTEN SHEATHING TO HEADER W/ 8d COMMON OR GALVANIZED BOX NAILS IN 3" GRID PATTERN AS SHOWN AND 3" O.C. IN ALL FRAMING (STUDS, BLOCKING, AND SILLS) TYP.
- FASTEN TOP PLATE TO HEADER W/ TWO ROWS OF 16d SINKER NAILS AT 3" O.C. TYP.
- L-STRAP (BACKSIDE). USE LONGER SERIES TO EXTEND TO TOP OF PONY WALL, IF PRESENT.
- MIN. WIDTH=16" FOR ONE STORY STRUCTURES, 24" FOR USE IN THE FIRST OF TWO STORY STRUCTURES
- MIN. (2) 2x4 (ALL DF#2) OR (2) 2x6
- 7/16" OSB SHEATHING MIN.
- 5THD14 OR HDU5 (UNO ON PLAN)
- HEADER EXTENDED OVER SHEARWALL
- 5/8" ANCHOR BOLT W/ MIN 3"x3"x22g PLATE WASHER
- FOR A PANEL SPLICE (IF NEEDED), PANEL EDGES SHALL BE BLOCKED, AND OCCUR WITHIN 24" OF MID-HEIGHT. ONE ROW OF TYP. SHEATHING TO FRAMING NAILING IS REQUIRED. IF 2x4 BLOCKING IS USED, THE 2x4'S MUST BE NAILED TOGETHER WITH (3) 16d SINKERS.
- (2) CONTINUOUS #4 REBAR AT FOOTING.
- #4 REBAR 4" FROM TOP #4 @ 12" O.C.
- 8" STEM WALL REQUIRED



- NOTES: PER IRC SECTION 303.6, R315.1 ALL INTERIOR AND EXTERIOR STAIRWAYS SHALL BE PROVIDED WITH A MEANS TO ILLUMINATE THE STAIR INCLUDING LANDINGS & TREADS. INTERIOR STAIRWAYS SHALL BE PROVIDED WITH AN ARTIFICIAL LIGHT SOURCE LOCATED IN THE IMMEDIATE VICINITY OF THE LANDING OF THE STAIRWAY. EXTERIOR STAIRWAYS SHALL BE PROVIDED WITH A LIGHT SOURCE LOCATED IN THE IMMEDIATE VICINITY OF THE TOP OF THE LANDING OF THE STAIRWAY. LIGHTING CONTROLS SHALL BE ACCESSIBLE AT THE TOP & BOTTOM OF EACH STAIRWAY WITHOUT TRAVERSING ANY STEPS. 4 OR MORE RISERS TO HAVE AT LEAST ONE HANDRAIL RUNNING CONTINUOUS THROUGH FULL LENGTH OF STAIR 34" MIN. HT., 38" MAX. HEIGHT. END SHALL RETURN TO WALL OR NEWEL POST OR VOLUTE. HANDRAIL MUST BE STRONG ENOUGH TO RESIST A 200 LB. FT. LOAD IN ANY DIRECTION. HANDRAIL TO BE PRESENT ON AT LEAST ONE SIDE OF STAIR. HAND GRIP PORTION OF HANDRAILS SHALL HAVE CIRCULAR CROSS SECTION OF 1 1/2" MIN. & 2 1/4" MAX. EDGES SHALL HAVE A MIN. RADIUS OF 1/8". ALL REQUIRED GUARDRAILS TO BE 36" MIN. IN HEIGHT.

