

LEGAL DESCRIPTION:
 THE SOUTH 25 FEET OF LOT 3 AND ALL OF LOT 4, BLOCK 4, LUCAS HEIGHTS,
 ACCORDING TO THE PLAT THEREOF RECORDED IN VOLUME 17 OF PLATS,
 PAGES 5, IN KING COUNTY, WASHINGTON
 TOGETHER WILL THE LAST HALF OF VACATED ALLEY ADJOINING

CRITICAL SITE INFORMATION:
 THIS LOT DOES NOT CONTAIN ANY WETLANDS, WATERCOURSE, STEEP SLOPE
 OR ANY CRITICAL AREAS OR BUFFERS

Category	Grove	≥ 24" DBH	Tree No.	DBH (in)	Tree Common Name & Species	Dripline (ft)	Health	Structure	Comments on Condition	Tree Type
Large	NO	✓	1	25"	Douglas-fir, Pseudotsuga menziesii	16'	Excellent	Good	No visible defects	Conifer
Shrub	N/A		2		Photinia fraseri	20'	Good	Fair	Multiple leaders covered in ivy, old age	Broadleaf evergreen
Shrub	N/A		3	18"	Leyland cypress, Cupressus xleylandii	16'	Excellent	Fair	Multiple leaders covered in ivy	Conifer
Shrub	N/A		4	22"	Leyland cypress, Cupressus xleylandii	16'	Excellent	Fair	Multiple leaders covered in ivy	Conifer
Shrub	N/A		5	39"	Leyland cypress, Cupressus xleylandii	17'	Excellent	Fair	Multiple leaders covered in ivy	Conifer
Exceptional	NO	✓	6	32"	Douglas-fir, Pseudotsuga menziesii	*14'	Excellent	Good	No visible defects	Conifer
Small	NO		7	5"	Douglas-fir, Pseudotsuga menziesii	8'	Excellent	Good	Suppressed by larger trees	Conifer
Small	N/A		8	5"	Douglas-fir, Pseudotsuga menziesii	8'	Excellent	Good	Suppressed by larger trees	Conifer
Shrub	N/A		9		Stranvaesia	12'	Good	Good	Multiple leaders (the largest of this shrub I have ever seen)	Broadleaf evergreen

* Dripline overhanging property line

DEVELOPMENT PROPOSALS FOR A NEW SINGLE-FAMILY HOME SHALL REMOVE JAPANESE KNOTWEED (POLYGONUM CUSPIDATUM) AND REGULATED CLASS A, REGULATED CLASS B, AND REGULATED CLASS C WEEDS IDENTIFIED ON THE KING COUNTY NOXIOUS WEED LIST, AS AMENDED, FROM REQUIRED LANDSCAPING AREAS ESTABLISHED PURSUANT TO SUBSECTION 19.02.020(F)(3)(A). NEW LANDSCAPING ASSOCIATED WITH NEW SINGLE FAMILY HOME SHALL NOT INCORPORATE ANY WEED LIST, AS AMENDED. PROVIDED, THAT REMOVAL SHALL NOT BE REQUIRED IF THE REMOVAL WILL RESULT IN INCREASED SLOPE INSTABILITY OR RISK OF LANDSLIDE OR EROSION.

WALL	WALL SEGMENT	ELEV.	WALL SEGMENT	x ELEV.
A	44.0'	354.25		15587
B	15.0'	355.0		5325
C	2.0'	355.05		710.1
D	36.0'	355.25		12789
E	4.0'	355.5		1422
F	10.0'	355.55		3555.5
G	4.0'	355.60		1422.4
H	12.0'	355.75		4269
I	46.0'	355.0		16330
J	20'	354.25		7085
K	10'	354.35		3543.5
L	21.0'	354.45		7443.45
M	17.0'	354.25		6022.25
N	17.0'	353.90		6016.3
O	7.0'	353.90		2477.3
P	15.0'	353.85		5307.75
TOTAL	280.0'	5675.9		99,305.55

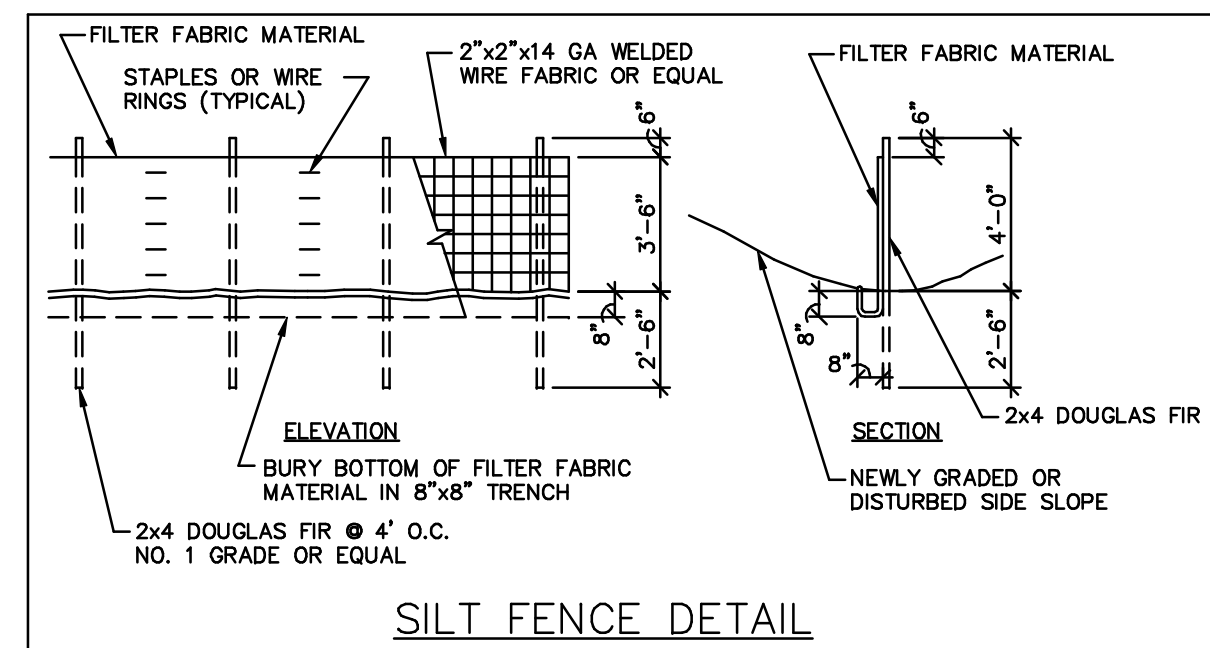
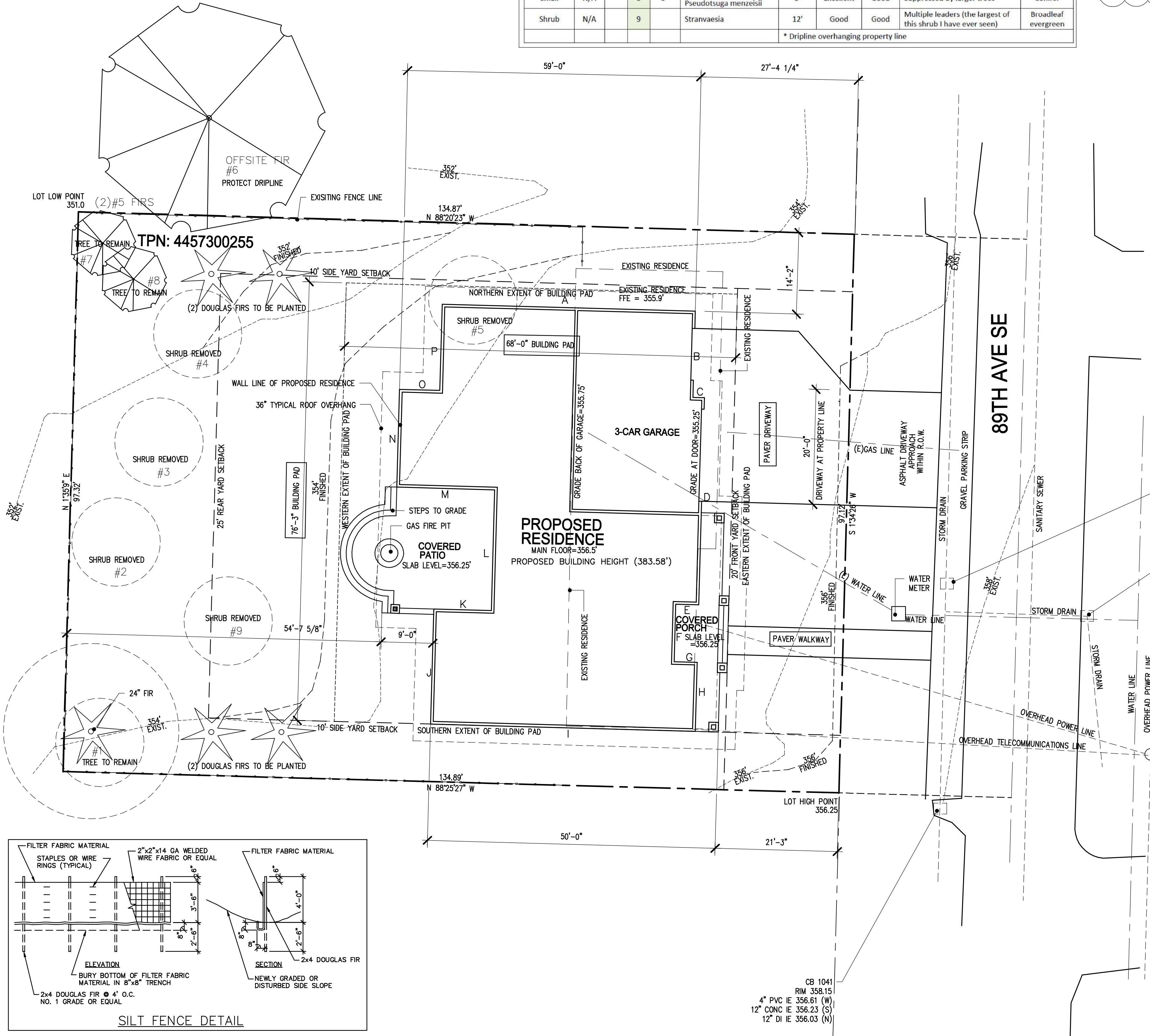
AVERAGE BUILDING ELEVATION = 99,305.55 / 280.0' = 354.66'
 MAXIMUM BUILDING HEIGHT = 354.66' + 30' = 384.66'
 PROPOSED BUILDING HEIGHT (383.58')

LOT SLOPE
 356.25' - 351 = 5.25'
 HORIZONTAL DISTANCE = 165.75'
 5.25 / 165.75' = .0317
 .0316 x 100 = 3.17%

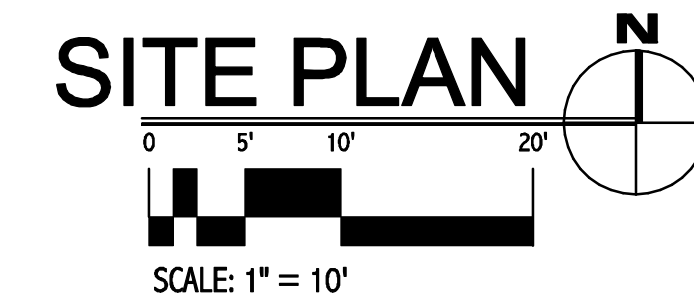
NOTE:
 SILT FENCES TO BE PROVIDED AT ALL
 DOWNSTREAM AREAS - NO EXCEPTIONS

NOTE:
 (DS) DENOTES DOWNSPOUT LOCATIONS
 CONNECT TO APPROVED DRAINAGE
 SYSTEM AS REQUIRED

TREE NOTE:
 NO TREES TO BE REMOVED WITHOUT
 PRIOR APPROVAL



NO RETAINING WALLS ARE REQUIRED	
LOT COVERAGE:	
LOT AREA:	13,113 S.F.
PROPOSED ROOF:	4589 S.F.
PAVER DRIVEWAY:	630 S.F.
TOTAL AREA:	5219 S.F.
TOTAL %:	39.54% S.F.
MAX. ALLOWED %:	40.0% S.F.
FRONT WALK BEYOND COVER:	86 S.F.
REAR PATIO BEYOND COVER:	79 S.F.
TOTAL HARDSCAPE:	165 S.F.
TOTAL %:	1.26% S.F.
MAX. ALLOWED %:	6% S.F.
FLOOR AREA RATIO:	
MAXIMUM ALLOWED:	5245 S.F. 40%
TOTAL LIVING:	3765 S.F.
GARAGE:	754 S.F.
COVERED BALCONY:	206 S.F.
GREAT ROOM TALL CEILING:	230 S.F.
FOYER TALL CEILING:	70 S.F.
STAIRWELL CEILING:	103 S.F.
PROPOSED F.A.R.	5128 S.F.
	5128 S.F. / 13,113 S.F. = 39.11%
BUILDING PAD AREA:	5185 S.F.



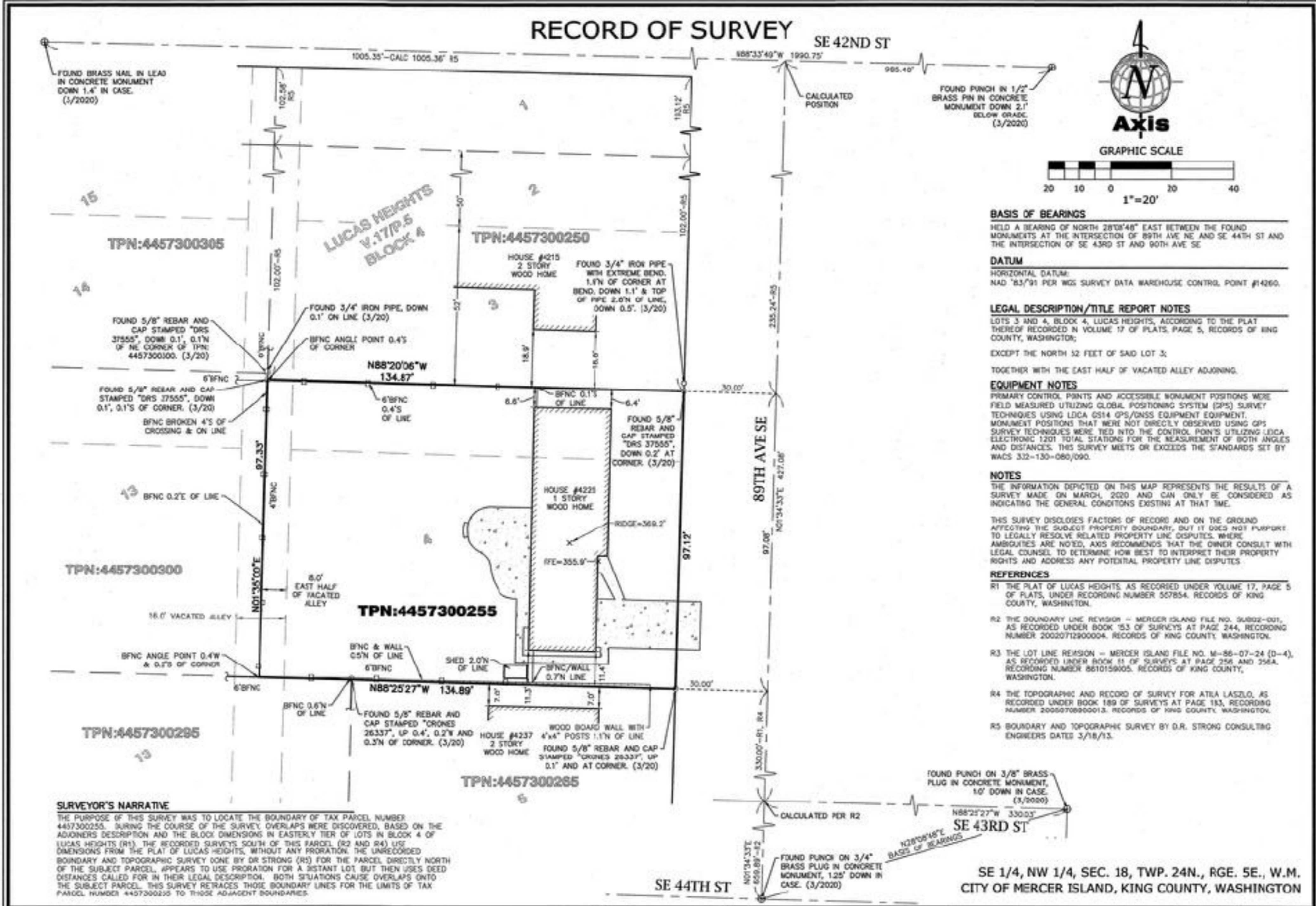
BROBST DESIGN WORKS
 dan@brobstdesignworks.com
 206.409.6690

SITE PLAN
 4225 89TH AVE SE
 MERCER ISLAND WA 98040
 TAX PARCEL: 4457300255

MERLINO RESIDENCE
 4225 89TH AVE SE MERCER ISLAND, WA 98040

REVISED 1.11.2021
 1.20.2021
 1"=10'-0"
 SCALE 8.20.2020
 DATE MERLINO
 COMPUTER FILE NAME
SITE
 SHEET NUMBER

425/201



BASIS OF BEARINGS

FIELD A BEARING OF NORTH 28°08'48" EAST BETWEEN THE FOUND MONUMENTS AT THE INTERSECTION OF 89TH AVE NE AND SE 44TH ST AND THE INTERSECTION OF SE 43RD ST AND 90TH AVE SE

DATUM

HORIZONTAL DATUM:
 NAD '83/'91 PER WGS SURVEY DATA WAREHOUSE CONTROL POINT #14260.

LEGAL DESCRIPTION/TITLE REPORT NOTES

LOTS 3 AND 4, BLOCK 4, LUCAS HEIGHTS, ACCORDING TO THE PLAT THEREOF RECORDED IN VOLUME 17 OF PLATS, PAGE 5, RECORDS OF KING COUNTY, WASHINGTON;
 EXCEPT THE NORTH 32 FEET OF SAID LOT 3;
 TOGETHER WITH THE EAST HALF OF VACATED ALLEY ADJOINING.

EQUIPMENT NOTES

PRIMARY CONTROL POINTS AND ACCESSIBLE MONUMENT POSITIONS WERE FIELD MEASURED UTILIZING GLOBAL POSITIONING SYSTEM (GPS) SURVEY TECHNIQUES USING LEICA GS14 GPS/GNSS EQUIPMENT. MONUMENT POSITIONS THAT WERE NOT DIRECTLY OBSERVED USING GPS SURVEY TECHNIQUES WERE TIED INTO THE CONTROL POINTS UTILIZING LEICA ELECTRONIC TOTAL STATIONS FOR THE RE-MEASUREMENT OF BOTH ANGLES AND DISTANCES. THIS SURVEY MEETS OR EXCEEDS THE STANDARDS SET BY WACS 332-130-080/090.

NOTES

THE INFORMATION DEPICTED ON THIS MAP REPRESENTS THE RESULTS OF A SURVEY MADE ON MARCH, 2020 AND CAN ONLY BE CONSIDERED AS INDICATING THE GENERAL CONDITIONS EXISTING AT THAT TIME.
 THIS SURVEY DISCLOSES FACTORS OF RECORD AND ON THE GROUND AFFECTING THE SUBJECT PROPERTY BOUNDARY, BUT IT DOES NOT PURPORT TO LEGALLY RESOLVE RELATED PROPERTY LINE DISPUTES, WHERE AMBIGUITIES ARE NOTED, AXIS RECOMMENDS THAT THE OWNER CONSULT WITH LEGAL COUNSEL TO DETERMINE HOW BEST TO INTERPRET THEIR PROPERTY RIGHTS AND ADDRESS ANY POTENTIAL PROPERTY LINE DISPUTES.

REFERENCES

- R1 THE PLAT OF LUCAS HEIGHTS, AS RECORDED UNDER VOLUME 17, PAGE 5 OF PLATS, UNDER RECORDING NUMBER 507854, RECORDS OF KING COUNTY, WASHINGTON.
- R2 THE BOUNDARY LINE REVISION - MERCER ISLAND FILE NO. 36802-001, AS RECORDED UNDER BOOK 153 OF SURVEYS AT PAGE 244, RECORDING NUMBER 20020712900004, RECORDS OF KING COUNTY, WASHINGTON.
- R3 THE LOT LINE REVISION - MERCER ISLAND FILE NO. M-86-07-24 (D-4), AS RECORDED UNDER BOOK 51 OF SURVEYS AT PAGE 256 AND 256A, RECORDING NUMBER 8610159005, RECORDS OF KING COUNTY, WASHINGTON.
- R4 THE TOPOGRAPHIC AND RECORD OF SURVEY FOR ATELA LASZLO, AS RECORDED UNDER BOOK 189 OF SURVEYS AT PAGE 183, RECORDING NUMBER 20050708900013, RECORDS OF KING COUNTY, WASHINGTON.
- R5 BOUNDARY AND TOPOGRAPHIC SURVEY BY D.R. STRONG CONSULTING ENGINEERS DATES 3/18/13.

SURVEYOR'S NARRATIVE
 THE PURPOSE OF THIS SURVEY WAS TO LOCATE THE BOUNDARY OF TAX PARCEL NUMBER 4457300255. DURING THE COURSE OF THE SURVEY OVERLAPS WERE DISCOVERED, BASED ON THE ADJOINERS DESCRIPTION AND THE BLOCK DIMENSIONS IN EASTERLY TIER OF LOTS IN BLOCK 4 OF LUCAS HEIGHTS (R1). THE RECORDED SURVEYS SOUTH OF THIS PARCEL (R2 AND R4) USE DIMENSIONS FROM THE PLAT OF LUCAS HEIGHTS, WITHOUT ANY PRORATION. THE UNRECORDED BOUNDARY AND TOPOGRAPHIC SURVEY DONE BY DR STRONG (R5) FOR THE PARCEL DIRECTLY NORTH OF THE SUBJECT PARCEL, APPEARS TO USE PRORATION FOR A INSTANT LOT, BUT THEN USES DEED DISTANCES CALLED FOR IN THEIR LEGAL DESCRIPTION. BOTH SITUATIONS CAUSE OVERLAPS ONTO THE SUBJECT PARCEL. THIS SURVEY RETRACES THOSE BOUNDARY LINES FOR THE LIMITS OF TAX PARCEL NUMBER 4457300255 TO THOSE ADJACENT BOUNDARIES.

20200618900004 Vol:425 Page:201
 SURVEY
 6/18/2020 10:10 AM
 KING COUNTY, WA

RECORDER'S CERTIFICATE: NO. 10210
 FILED FOR RECORD THIS 19 DAY OF JUNE, 2020 AT 8 AM
 IN BOOK 425 OF SURVEYS, PAGE 201 AT THE REQUEST OF AXIS
 SURVEYING AND MAPPING INC.
 DIVISION OF RECORDS AND ELECTIONS
 MANAGER: [Signature]
 SUPT. OF RECORDS: [Signature]

SURVEYOR'S CERTIFICATE
 THIS MAP CORRECTLY REPRESENTS A SURVEY MADE BY ME OR UNDER MY DIRECTION IN CONFORMANCE WITH THE REQUIREMENTS OF THE SURVEY RECORDING ACT AT THE REQUEST OF JOHN MERLINO IN MAY 2020
 W. Travis Bradley
 CERTIFICATE NO. 48372
 DATE: 06/12/2020



JOHN MERLINO
 4225 89TH AVE SE
 MERCER ISLAND, WA 98040

Axis
 Survey & Mapping
 15241 NE 90TH ST
 REDMOND, WA 98052
 TEL 425.823-5300
 FAX 425.823-6700
 www.axismap.com

JOB NO.	DATE
20-060	06/12/2020
DRAWN BY	CHECKED BY
JM	WTB
SCALE	SHEET
1"=20'	1 OF 1

PROPOSED INFILTRATION LOCATIONS
TO BE PROTECTED FROM
COMPACTION DURING CONSTRUCTION

PROPOSED INFILTRATION LOCATIONS
TO BE PROTECTED FROM
COMPACTION DURING CONSTRUCTION

NO STAGING OR STORAGE
WITHIN RIGHT-OF-WAY
ALL STAGING AND STORAGE
TO TAKE PLACE WITHIN
LIMITS OF WORK

EXISTING DRIVEWAY TO BE
RETAINED AND UTILIZED FOR
CONSTRUCTION ENTRANCE

INSTALL STORM DRAIN INLET
PROTECTION PER BMP C200

PROTECT TREE
BEYOND LIMITS
OF WORK (TYP.)

REMOVE EXISTING
HOME, SHED AND
WALKWAYS

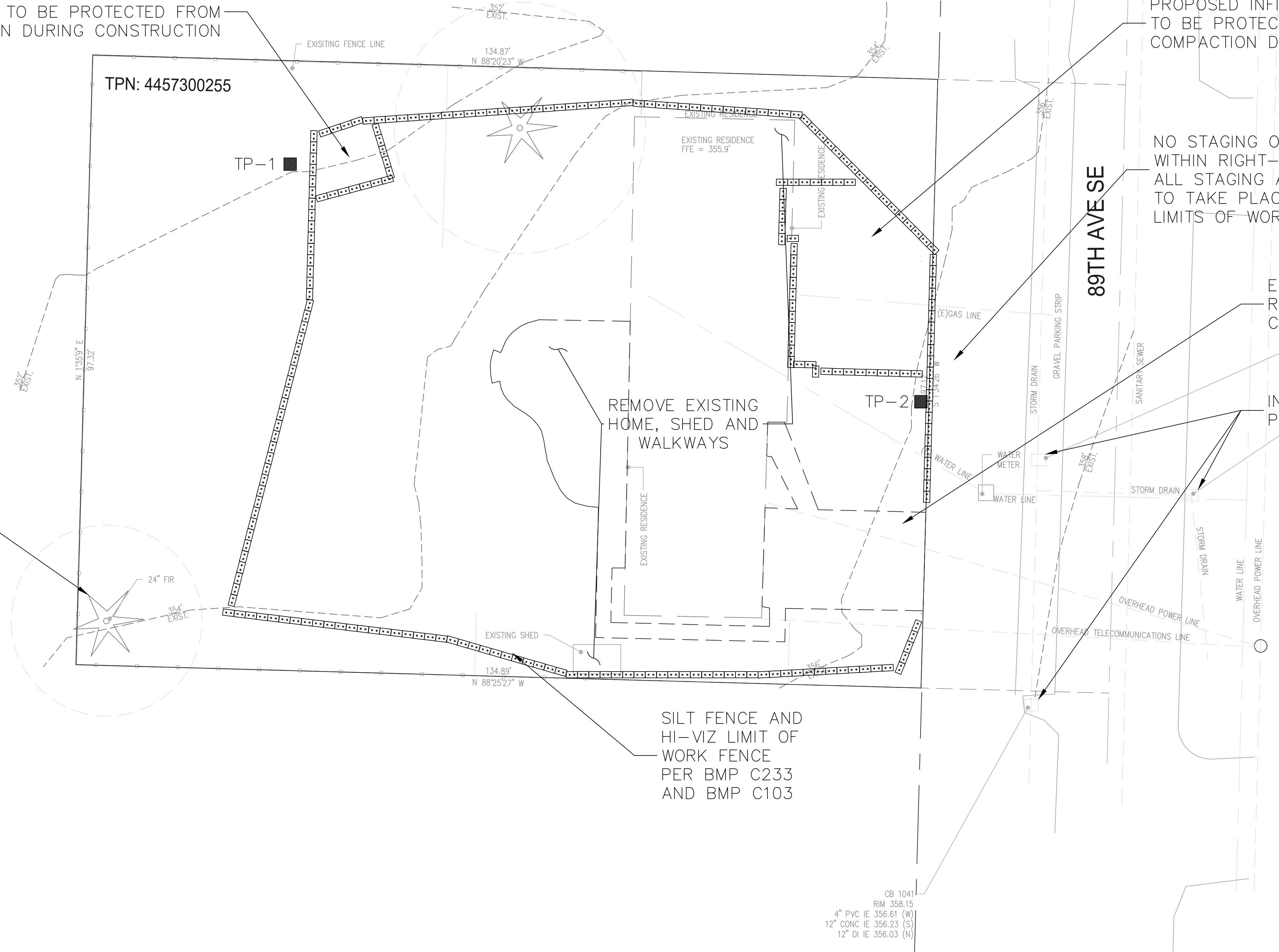
SILT FENCE AND
HI-VIZ LIMIT OF
WORK FENCE
PER BMP C233
AND BMP C103

TPN: 4457300255

TP-1

TP-2

89TH AVENUE SE

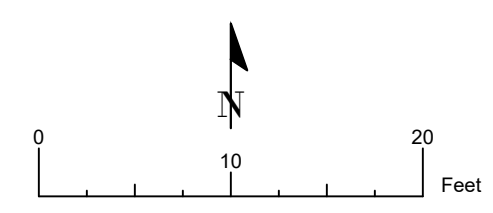


CB 1046
RIM 357.04
12" DI IE 355.12 (S)
8" DI IE 355.20 (W)

CB 1045
RIM 358.11
12" DI IE 356.63 (S)
8" DI IE 356.47 (W)

CB 1041
RIM 358.15
4" PVC IE 356.61 (W)
12" CONC IE 356.23 (S)
12" DI IE 356.03 (N)

SEE C2 FOR DRAINAGE SITE PLAN

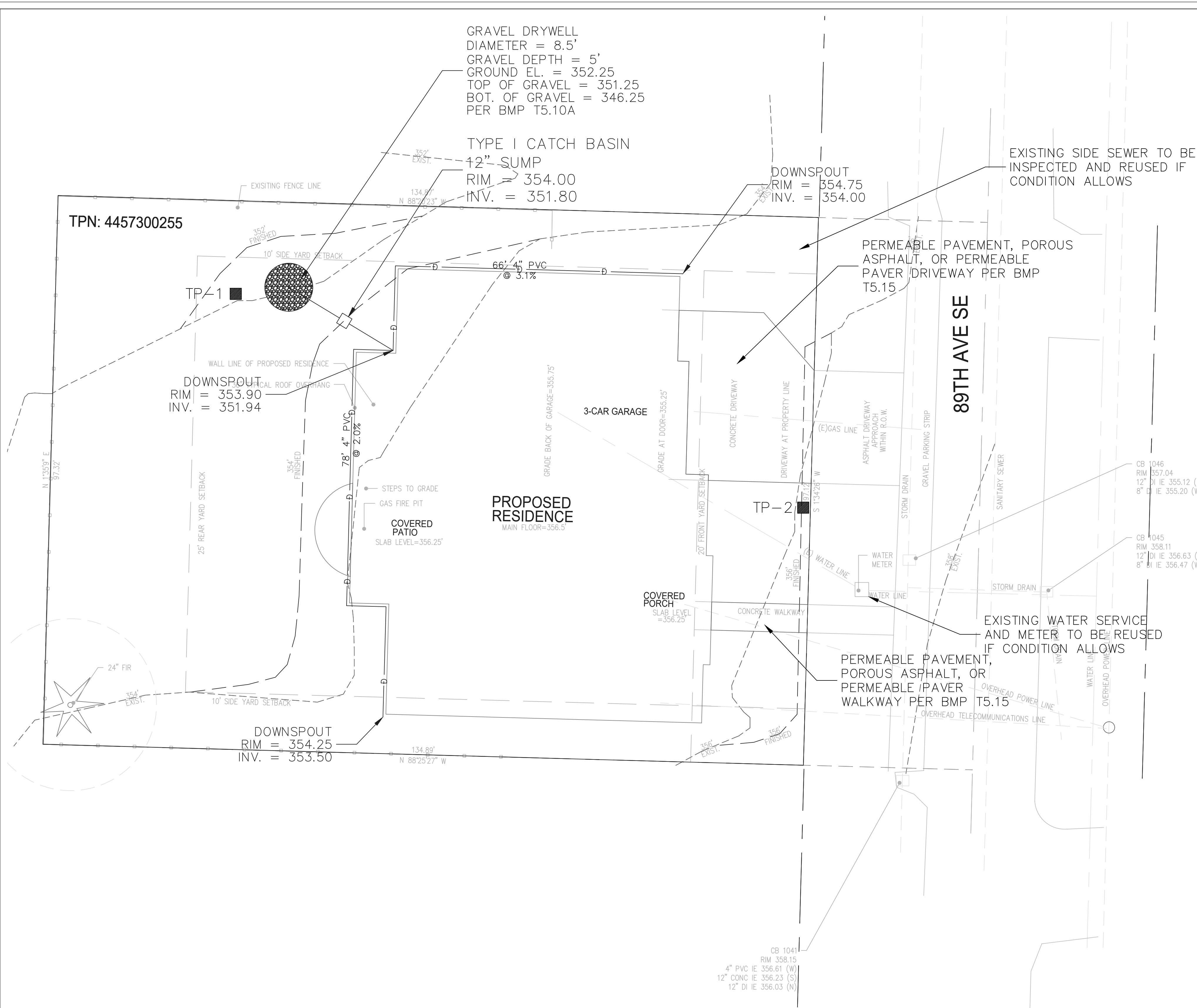


Merlino Residence
Site Address: 4225 89th Ave SE
Jurisdiction: Mercer Island
Parcel No.: 445730-0255
Applicant: John Merlino
Permit No.:
Interlaken Project No.: SEA-20-041

Interlaken Engineering and Design, PLLC
Seattle, WA | (206) 470-9572
www.interlakenengineering.com

Revisions:

C1
TESC/ Demo/ CSWPPP
Scale: 1" = 10'



THE LAWN AND LANDSCAPE AREAS ARE REQUIRED TO PROVIDE POST-CONSTRUCTION SOIL QUALITY AND DEPTH IN ACCORDANCE WITH BMP T5.13. THE PROJECT CIVIL ENGINEER MUST PROVIDE A LETTER OF CERTIFICATION TO ENSURE THAT THE LAWN AND LANDSCAPE AREAS ARE MEETING THE POST-CONSTRUCTION SOIL QUALITY AND DEPTH REQUIREMENTS SPECIFIED ON THE APPROVED PLAN SET PRIOR TO FINAL INSPECTION ON THE PROJECT.

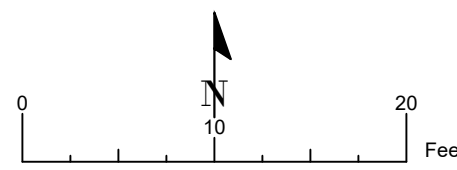
- ALL AREAS SUBJECT TO CLEARING AND GRADING THAT HAVE NOT BEEN COVERED BY IMPERVIOUS SURFACE, INCORPORATED INTO A DRAINAGE FACILITY OR ENGINEERED AS STRUCTURAL FILL OR SLOPE SHALL, AT PROJECT COMPLETION, DEMONSTRATE THE FOLLOWING:
1. A TOPSOIL LAYER WITH A MINIMUM ORGANIC MATTER CONTENT OF 10% DRY WEIGHT IN PLANTING BEDS, AND 5% ORGANIC MATTER CONTENT IN TURF AREAS, AND A PH FROM 6.0 TO 8.0 OR MATCHING THE PH OF THE UNDISTURBED SOIL. THE TOPSOIL LAYER SHALL HAVE A MINIMUM DEPTH OF EIGHT INCHES EXCEPT WHERE TREE ROOTS LIMIT THE DEPTH OF INCORPORATION OF AMENDMENTS NEEDED TO MEET THE CRITERIA. SUBSOILS BELOW THE TOPSOIL LAYER SHOULD BE SCARIFIED AT LEAST 4 INCHES WITH SOME INCORPORATION OF THE UPPER MATERIAL TO AVOID STRATIFIED LAYERS, WHERE FEASIBLE.
 2. MULCH PLANTING BEDS WITH 2 INCHES OF ORGANIC MATERIAL.
 3. USE COMPOST AND OTHER MATERIALS THAT MEET THESE ORGANIC CONTENT REQUIREMENTS:
 - A. THE ORGANIC CONTENT FOR "PRE-APPROVED" AMENDMENT RATES CAN BE MET ONLY USING COMPOST MEETING THE COMPOST SPECIFICATION FOR BIORETENTION (BMP T7.30), WITH THE EXCEPTION THAT THE COMPOST MAY HAVE UP TO 35% BIOSOLIDS OR MANURE. THE COMPOST MUST ALSO HAVE AN ORGANIC MATTER CONTENT OF 40% TO 65%, AND A CARBON TO NITROGEN RATIO BELOW 25:1. THE CARBON TO NITROGEN RATIO MAY BE AS HIGH AS 35:1 FOR PLANTINGS COMPOSED ENTIRELY OF PLANTS NATIVE TO THE PUGET SOUND LOWLANDS REGION.
 - B. CALCULATED AMENDMENT RATES MAY BE MET THROUGH USE OF COMPOSTED MATERIAL MEETING (A) ABOVE; OR OTHER ORGANIC MATERIALS AMENDED TO MEET THE CARBON TO NITROGEN RATIO REQUIREMENTS, AND NOT EXCEEDING THE CONTAMINANT LIMITS IDENTIFIED IN TABLE 220-B, TESTING PARAMETERS, IN WAC 173-350-220.
- THE RESULTING SOIL SHOULD BE CONDUCTIVE TO THE TYPE OF VEGETATION TO BE ESTABLISHED.
- IMPLEMENTATION OPTIONS: THE SOIL QUALITY DESIGN GUIDELINES LISTED ABOVE CAN BE MET BY USING ONE OF THE METHODS LISTED BELOW:
1. LEAVE UNDISTURBED NATIVE VEGETATION AND SOIL, AND PROTECT FROM COMPACTION DURING CONSTRUCTION.
 2. AMEND EXISTING SITE TOPSOIL OR SUBSOIL EITHER AT DEFAULT "PREAPPROVED" RATES, OR AT CUSTOM CALCULATED RATES BASED ON TESTS OF THE SOIL AND AMENDMENT.
 3. STOCKPILE EXISTING TOPSOIL DURING GRADING, AND REPLACE IT PRIOR TO PLANTING. STOCKPILED TOPSOIL MUST ALSO BE AMENDED IF NEEDED TO MEET THE ORGANIC MATTER OR DEPTH REQUIREMENTS, EITHER AT A DEFAULT "PRE-APPROVED" RATE OR AT A CUSTOM CALCULATED RATE.
 4. IMPORT TOPSOIL MIX OF SUFFICIENT ORGANIC CONTENT AND DEPTH TO MEET THE REQUIREMENTS. MORE THAN ONE METHOD MAY BE USED ON DIFFERENT PORTIONS OF THE SAME SITE. SOIL THAT ALREADY MEETS THE DEPTH AND ORGANIC MATTER QUALITY STANDARDS, AND IS NOT COMPACTED, DOES NOT NEED TO BE AMENDED.

PRE-APPROVED AMENDMENT METHOD:
TURF: 3111 SF x 5.4 CY / 1,000 SF = 17 CY
TOTAL QUANTITY = 17 CY

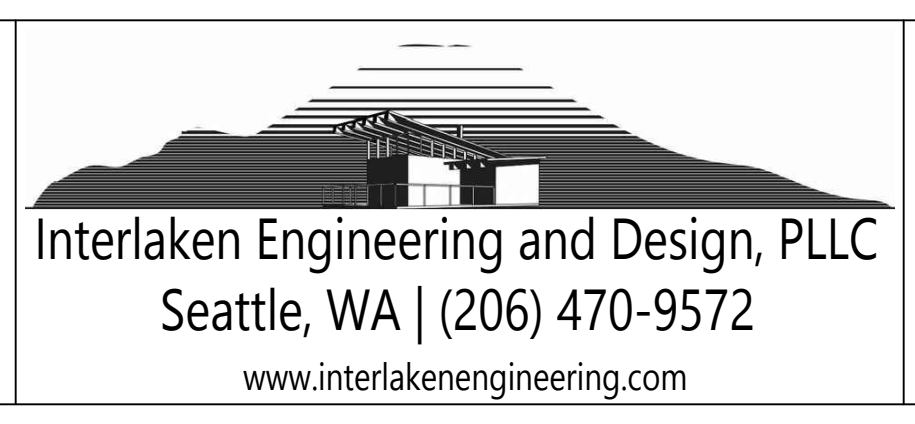
Hard Surface Data	
Existing Hard Surface	3038 sf
Existing Vegetation	10192 sf
New Roof	4589 sf
New Driveway (North)	635 sf
New Walkway (South)	85 sf
New Patio (West)	80 sf
Total Proposed	5389 sf
Proposed Vegetation	7841 sf
Replaced Hard Surface	2708 sf
Total New Hard Surface	2681 sf
Removed Hard Surface	330 sf
Total New + Replaced	5389 sf

SEE C1 FOR TESC/ DEMO CSWPPP

LEGAL DESCRIPTION
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TOGETHER WITH THE EAST HALF OF VACATED ALLEY ADJOINING.



Merlino Residence
Site Address: 4225 89th Ave SE
Jurisdiction: Mercer Island
Parcel No.: 445730-0255
Applicant: John Merlino
Permit No.:
Interlaken Project No.: SEA-20-041



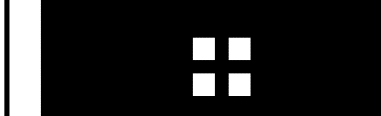
Revisions:

C2
Drainage Site Plan
Scale: 1" = 10'



EXPIRES 2/1/2022

DR. BROBST
DESIGN WORKS



dan@brobstdesignworks.com
206.409.6690

MAIN LEVEL FLOOR FRAMING & FOUNDATION PLAN

MERLINO RESIDENCE

4225 89TH AVE SE MERCER ISLAND, WA 98040

REVISED

1/4" = 1'-0"

SCALE

11.10.2020

DATE

COMPUTER FILE NAME

A1

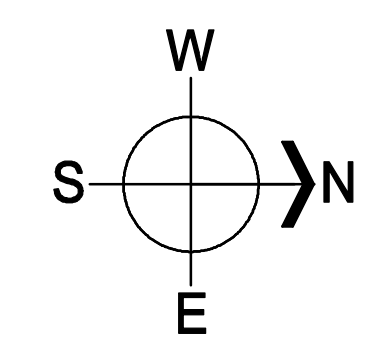
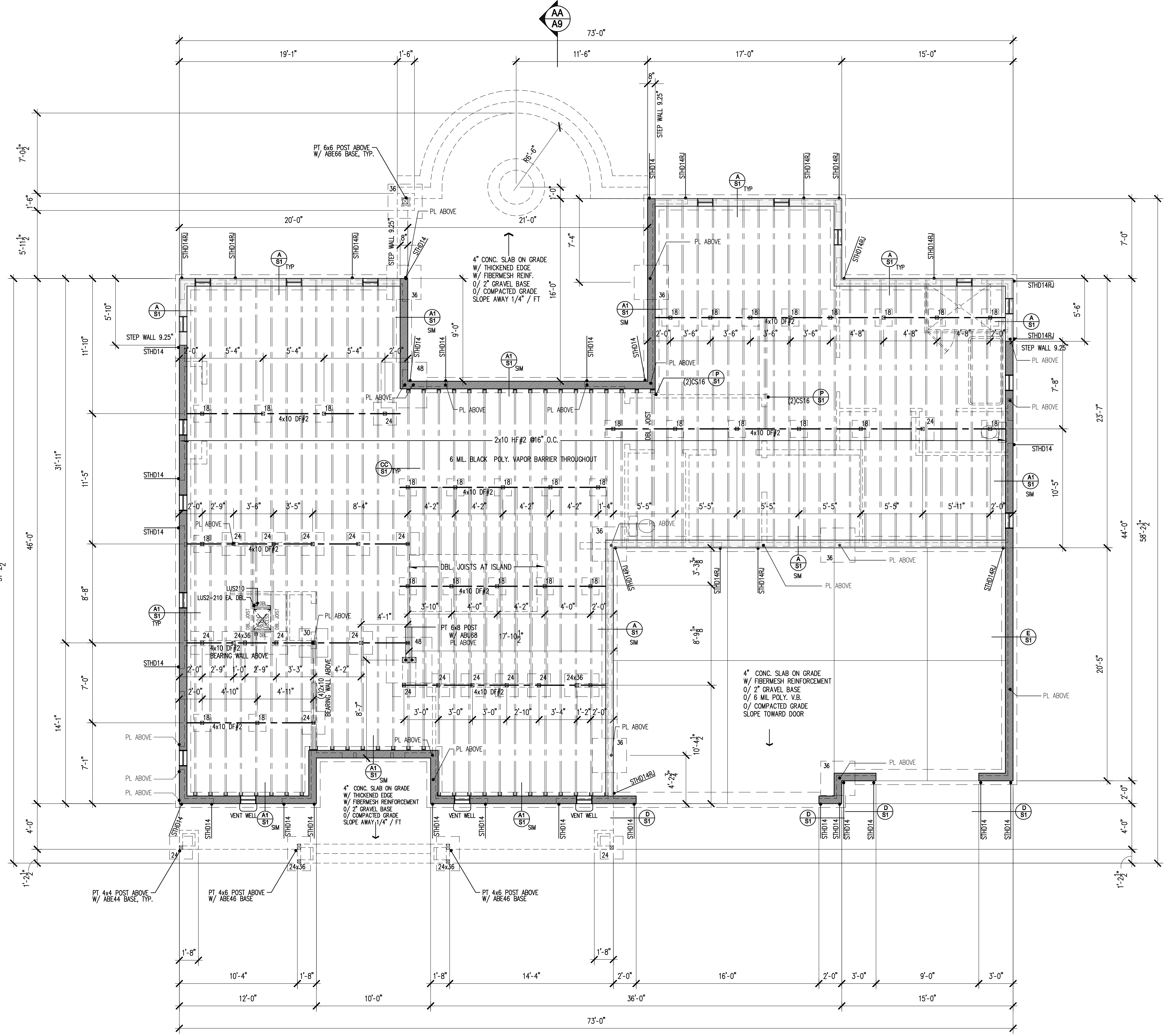
SHEET NUMBER

FOOTING SCHEDULE:

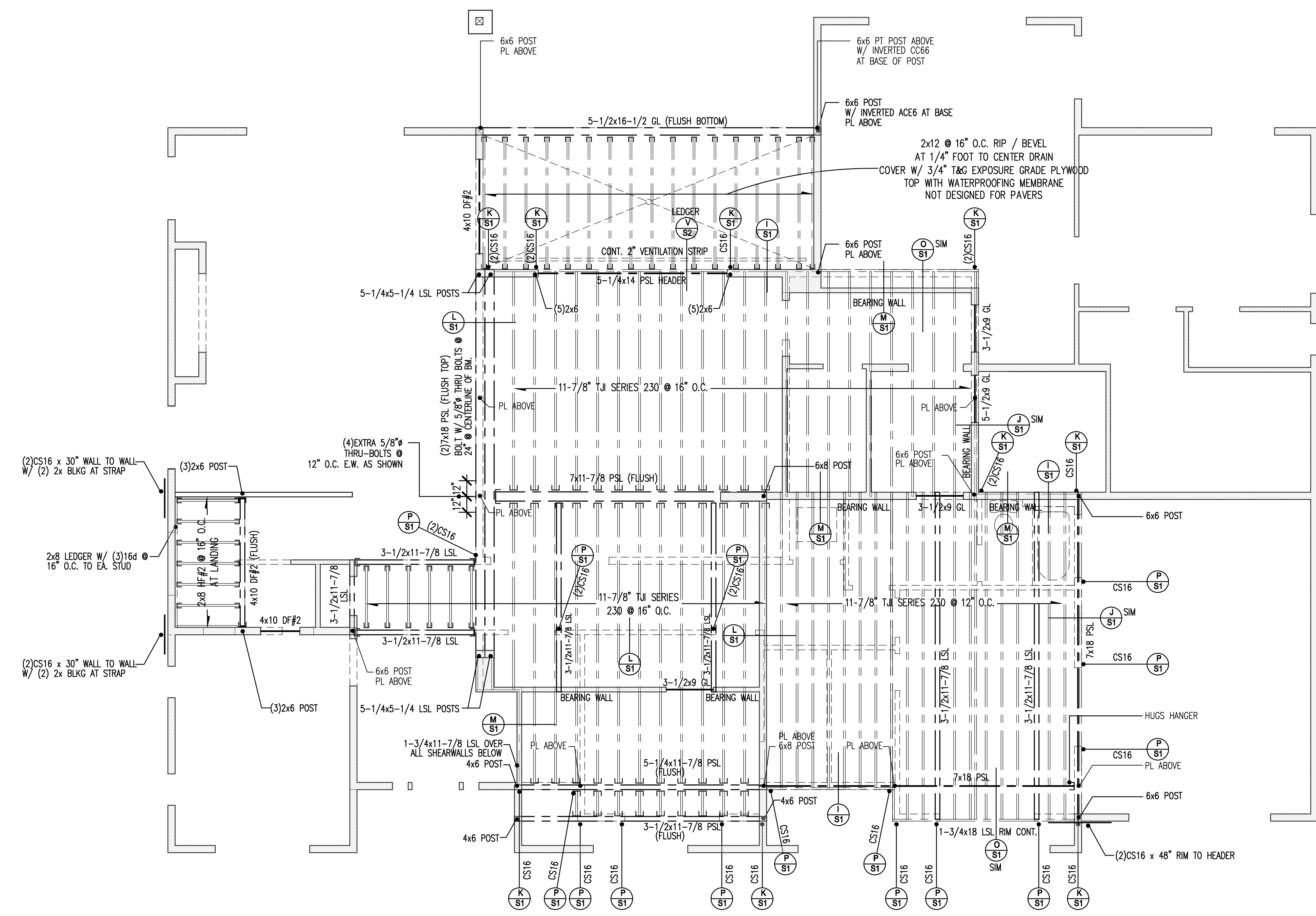
	1'-6"x1'-6"x8" DEEP CONC. FOOTING W/ (3)#4 EACH WAY, TYP.
	2'-0"x2'-0"x8" DEEP CONC. FOOTING W/ (3)#4 EACH WAY, TYP.
	2'-6"x2'-6"x8" DEEP CONC. FOOTING W/ (4)#4 EACH WAY, TYP.
	3'-0"x3'-0"x12" DEEP CONC. FOOTING W/ (5)#4 EACH WAY, TYP.
	4'-0"x4'-0"x14" DEEP CONC. FOOTING W/ #5 @ 6" o.c. EACH WAY TOP AND BOTTOM, TYP.

VENTILATION: R408.2 WITH WA. STATE AMENDMENT
 PROVIDE 1 SQFT. VENTILATION PER 300 SQFT. UNDER FLOOR AREA
 2463 SQFT UNDER FLOOR AREA / 300 = 8.21 SQFT. VENTILATION REQUIRED
 8.21 SQ FT VENTING REQUIRED / .50 SQ FT PER VENT = 16.42 TOTAL NUMBER OF 16"x8" PLASTIC VENTS REQUIRED
 PROVIDE A MINIMUM OF (17) 16"x8" FND VENTS
 (NET VENTING AREA = 73 SQ IN OR .50 SQFT)

POINT LOAD NOTE:
 "PL" DESIGNATES POINT LOAD FROM ABOVE ON THE FOUNDATION PLAN. PROVIDE SOLID BLOCKING UNDER ALL LOCATIONS AND NO VENTS ARE ALLOWED BELOW PL.



AA
A9

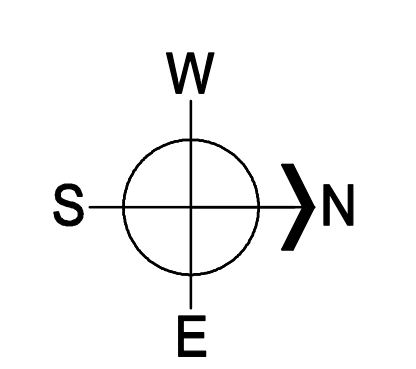


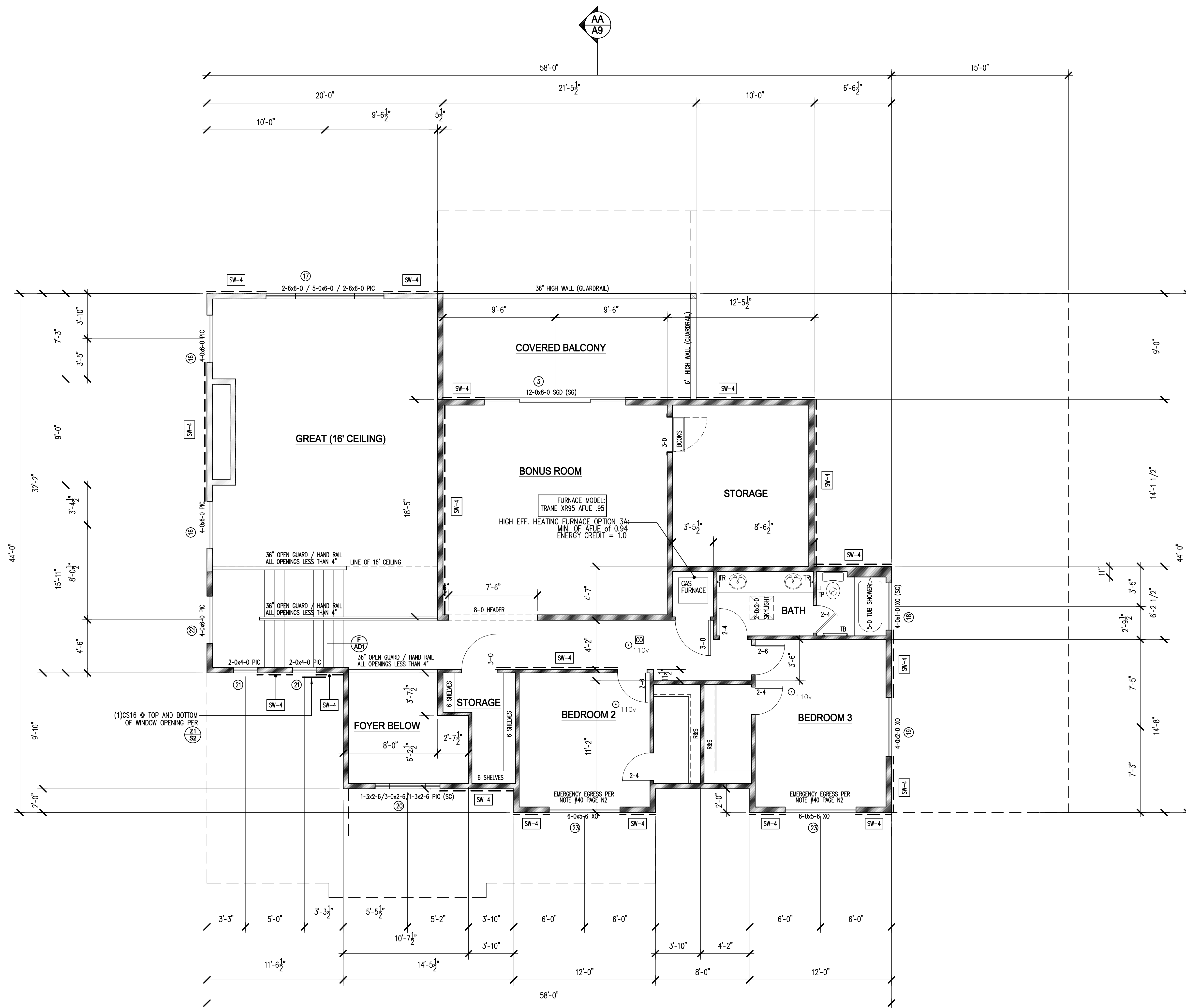
EXPIRES 2/1/2022
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 DESIGN WORKS
 dan@brobstdesignworks.com
 206.409.6690

UPPER LEVEL FLOOR FRAMING

MERLINO RESIDENCE
 4225 89TH AVE SE MERCER ISLAND, WA 98040

REVISED
 1/4" = 1'-0"
 SCALE
 11.10.2020
 DATE
 COMPUTER FILE NAME
A3
 SHEET NUMBER



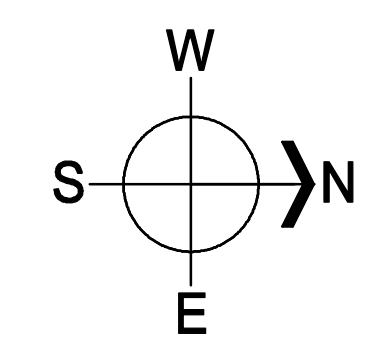


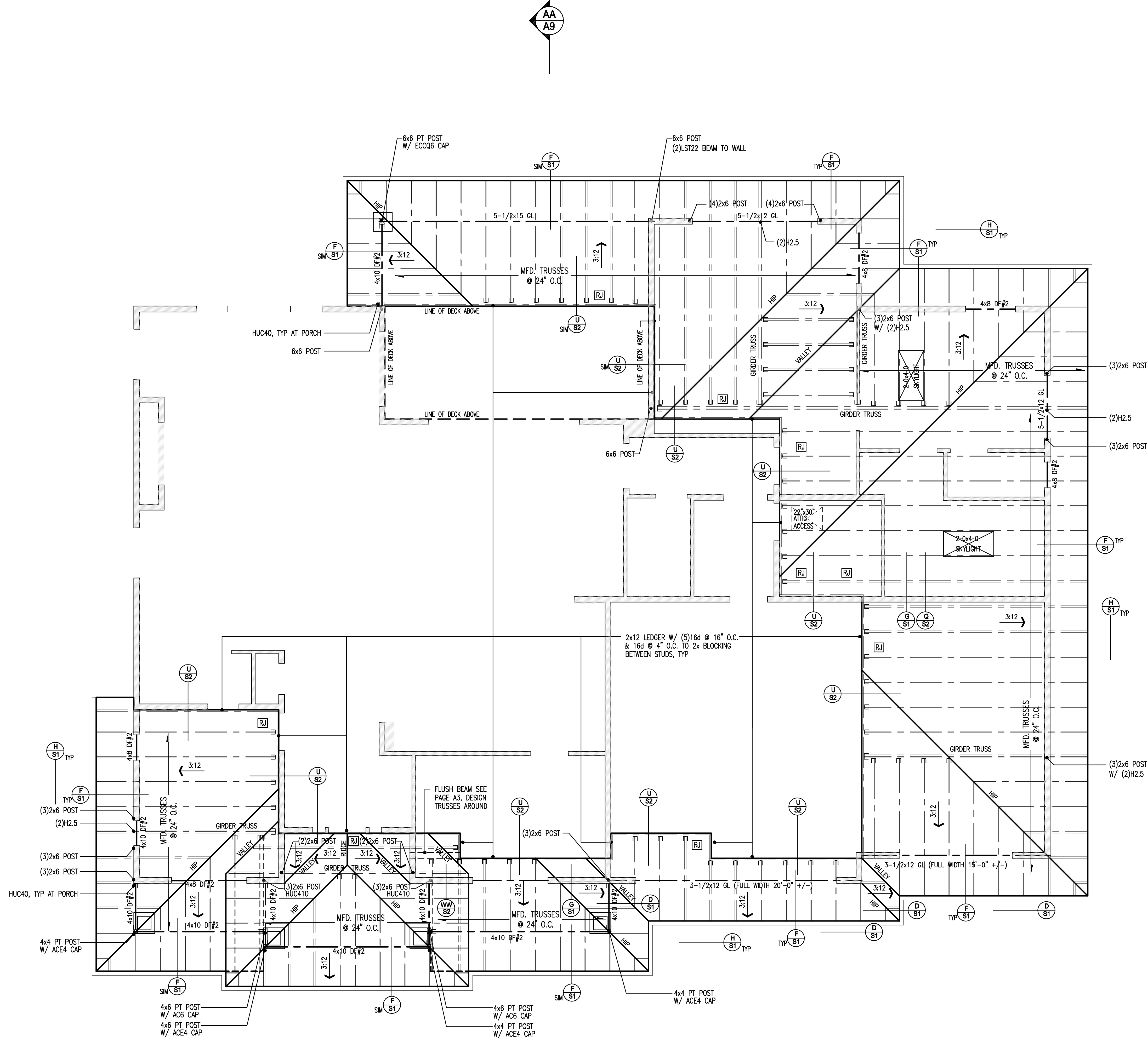
EXPIRES 2/1/2022
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 DESIGN WORKS
 dan@brobstdesignworks.com
 206.409.6690

UPPER LEVEL FLOOR PLAN

MERLINO RESIDENCE
 4225 89TH AVE SE MERCER ISLAND, WA 98040

REVISED
 1/4"=1'-0"
 SCALE
 11.10.2020
 DATE
 COMPUTER FILE NAME
A4
 SHEET NUMBER





ATTIC VENTILATION:
 MINIMUM ATTIC VENTILATION SHALL BE 1/300 OF THE ATTIC PLAN AREA.
 UPPER VENTING SHALL BE PROVIDED BY 4\"/>

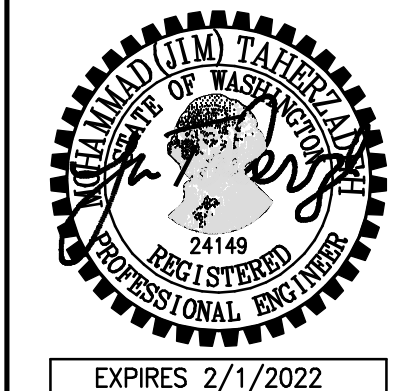
REAR PATIO, MASTER, NORTH GARAGE ROOF:
 1170.0 SQ. FT ATTIC AREA / 300 = 3.9 SQFT. VENT'G REQ'D
 1.95 SQFT. OF VENT'G TO BE PROVIDED ABOVE THE HALF-WAY POINT AND 1.95 SQFT. OF VENT'G TO BE PROVIDED BELOW THE HALF-WAY POINT.
 UPPER VENTING: 1.95 SQ. FT. / .34 PER VENT = 5.74 : PROVIDE (6) ROOF JACKS
 LOWER VENTING: 1.95 SQ. FT. / .049 PER VENT = 39.7 : PROVIDE A MIN. OF (40) EAVE BLOCKS

GARAGE LOW FRONT ROOF / PATIO NORTH:
 140.0 SQ. FT ATTIC AREA / 300 = .48 SQFT. VENT'G REQ'D
 .24 SQFT. OF VENT'G TO BE PROVIDED ABOVE THE HALF-WAY POINT AND .24 SQFT. OF VENT'G TO BE PROVIDED BELOW THE HALF-WAY POINT.
 UPPER VENTING: .24 SQ. FT. / .34 PER VENT = .71 : PROVIDE (1) ROOF JACKS
 LOWER VENTING: .24 SQ. FT. / .049 PER VENT = 4.89 : PROVIDE A MIN. OF (5) EAVE BLOCKS

RAISED FRONT PORCH ROOF AT ENTRY DOOR:
 116.0 SQ. FT ATTIC AREA / 300 = .40 SQFT. VENT'G REQ'D
 .20 SQFT. OF VENT'G TO BE PROVIDED ABOVE THE HALF-WAY POINT AND .20 SQFT. OF VENT'G TO BE PROVIDED BELOW THE HALF-WAY POINT.
 UPPER VENTING: .20 SQ. FT. / .34 PER VENT = .59 : PROVIDE (1) ROOF JACKS
 LOWER VENTING: .20 SQ. FT. / .049 PER VENT = 4.08 : PROVIDE A MIN. OF (5) EAVE BLOCKS

DEN LOW FRONT ROOF / PATIO SOUTH:
 195.0 SQ. FT ATTIC AREA / 300 = .65 SQFT. VENT'G REQ'D
 .24 SQFT. OF VENT'G TO BE PROVIDED ABOVE THE HALF-WAY POINT AND .24 SQFT. OF VENT'G TO BE PROVIDED BELOW THE HALF-WAY POINT.
 UPPER VENTING: .24 SQ. FT. / .34 PER VENT = .71 : PROVIDE (1) ROOF JACKS
 LOWER VENTING: .24 SQ. FT. / .049 PER VENT = 4.89 : PROVIDE A MIN. OF (5) EAVE BLOCKS

[RJ] ROOF JACK LOCATIONS

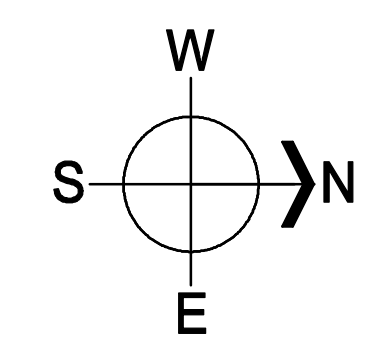


DR. BROBST
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 206.409.6690

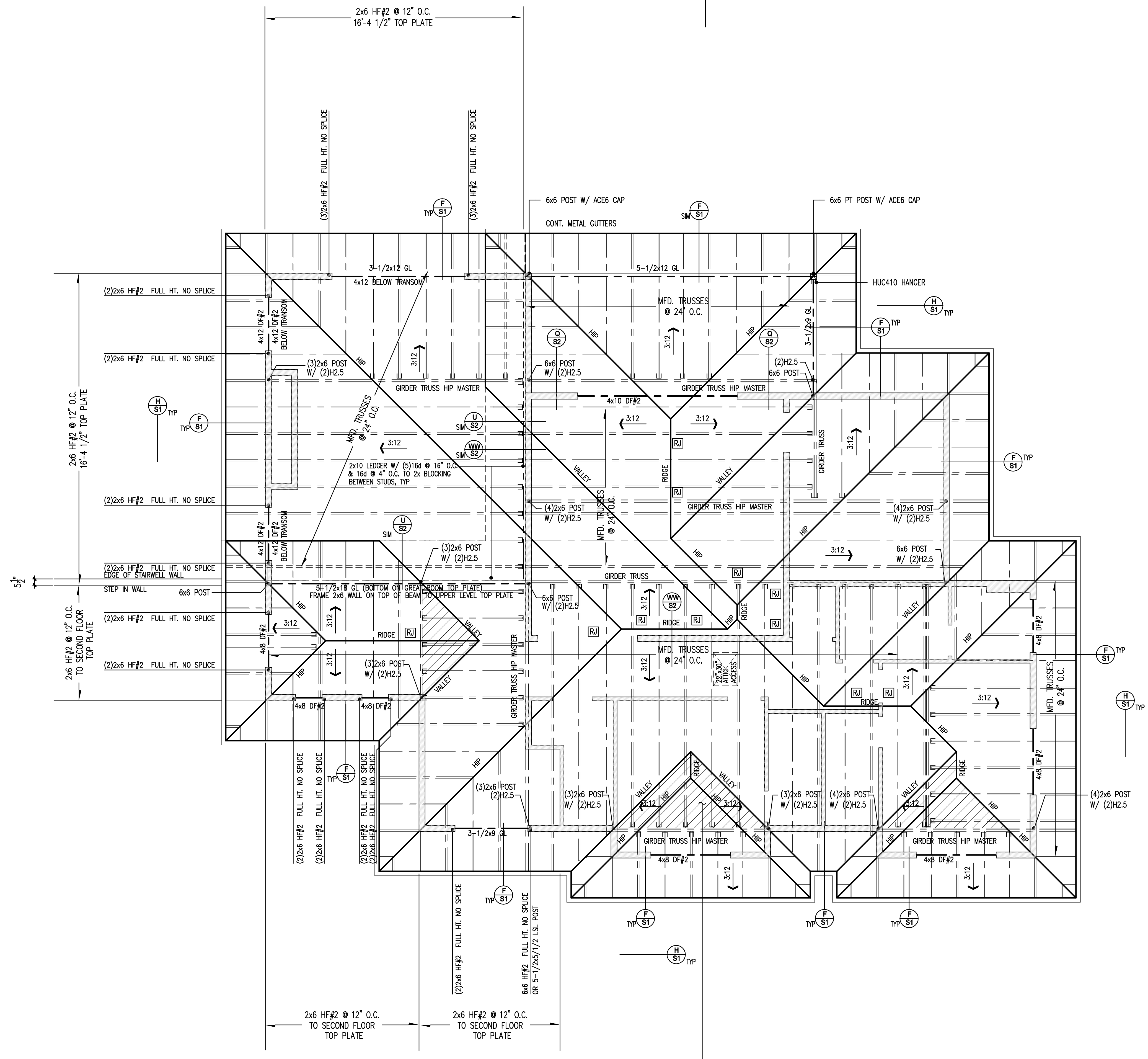
LOWER ROOF FRAMING PLAN

MERLINO RESIDENCE
 4225 89TH AVE SE MERCER ISLAND, WA 98040

REVISED _____
 SCALE 1/4"=1'-0"
 DATE 11.10.2020
 COMPUTER FILE NAME _____
A5
 SHEET NUMBER



AA
A9



OVERFRAMING NOTE:
ALL OVERFRAMING MEMBERS SHALL BE 2x6 H F#2 @ 24" O.C. MAX.
ALL MEMBERS SHALL BE BRACED DOWN TO TRUSSES @ 48" O.C.
EACH WAY W/ MIN. 2x4 BRACE, TYPICAL ALL OVERFRAMING

ATTIC VENTILATION:
MINIMUM ATTIC VENTILATION SHALL BE 1/300 OF THE ATTIC PLAN AREA.
UPPER VENTING SHALL BE PROVIDED BY AT-50 ROOF JACKS LOCATED WITHIN 3' OF THE RIDGE OF THE ROOF EACH JACK VENT PROVIDES .34 SF OF VENTING PER JACK
LOWER VENTING SHALL BE PROVIDED BY LOWER VENTING SHALL BE EAVE VENT BLOCKS W/ (3) 2" DIA SCREENED HOLES PROVIDING A NET VENT AREA OF 7.068 SQIN. =0.0492 SQ FT AND IF REQUIRED AT-50 ROOF JACKS LOCATED BELOW THE MIDPOINT OF THE ROOF EACH JACK VENT PROVIDES .34 SF OF VENTING PER JACK
SEE DETAIL S/AD1 FOR VENTING AT EAVE DIAGRAM

UPPER ROOF:
2130.0 SQ. FT ATTIC AREA / 300 = 7.1 SQFT. VENT'G REQ'D
3.55 SQFT. OF VENT'G TO BE PROVIDED ABOVE THE HALF-WAY POINT AND 3.55 SQFT. OF VENT'G TO BE PROVIDED BELOW THE HALF-WAY POINT.
UPPER VENTING:
3.55 SQ. FT. / .34 PER VENT = 10.4 : PROVIDE (11) ROOF JACKS
LOWER VENTING:
3.55 SQ. FT. / .049 PER VENT = 72.44 : PROVIDE A MIN. OF (73) EAVE BLOCKS

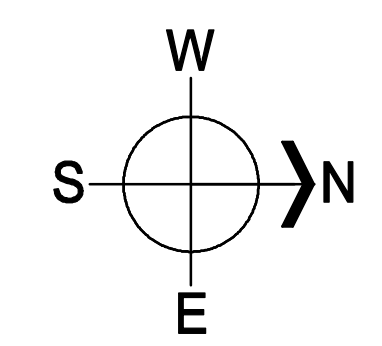
[RJ] ROOF JACK LOCATIONS

DROBST DESIGN WORKS
dan@brobstdesignworks.com
206.409.6690

UPPER ROOF FRAMING PLAN

MERLINO RESIDENCE
4225 89TH AVE SE MERCER ISLAND, WA 98040

REVISED
SCALE: 1/4"=1'-0"
DATE: 11.10.2020
COMPUTER FILE NAME: A6
SHEET NUMBER



MAXIMUM ALLOWED BUILDING HEIGHT (384.66')

PROPOSED BUILDING HEIGHT (383.58')

28'-10 1/2"

9'-0"

8'-0"

16'-4 1/2"

10'-0"

8'-0"

UPPER LEVEL TOP OF PLATE
WINDOW HEADER

GREAT ROOM TOP OF PLATE
WINDOW HEADER

TOP OF PLATE
WINDOW HDR

FLOOR LINE (356.5')
GARAGE SLAB AT BACK

AVERAGE BUILDING ELEVATION (354.66')

GARAGE SLAB AT DOOR (355.25')



FIBER-CEMENT LAP SIDING W/ STAGGERED PATTERN 4" & 8" EXPOSURE

5/4x4 HEAD FLASHING W/ PAINTED METAL "Z" FLASHING AT TWO UPPER WINDOWS

5/4x4 EDGE TRIM AND CORNER BOARDS, TYP.

FIBER-CEMENT LAP SIDING 4" EXPOSURE

5/4x6 HEAD FLASHING W/ 5/4x2 CAP TRIP AND GALV. PAINTED METAL "Z" FLASHING

2x8 FASCIA W/ CONT. METAL GUTTERS

FIBER-CEMENT LAP SIDING 8" EXPOSURE

ADHERED SIMULATED STONE VENEER

FINISHED GRADE TO SLOPE AWAY

FINISHED GRADE EXISTING GRADE

M ADT VENEER

2x3 SILL W/ BEVELED EDGE 5/4x6 APRON TRIM

2x3 SILL W/ BEVELED CAP W/ PAINTED METAL FLASHING OVER 2x10 BELLY BAND

FRONT (EAST) ELEVATION

MAXIMUM ALLOWED BUILDING HEIGHT (384.66')

AVERAGE BUILDING ELEVATION (354.66')

FINISHED GRADE EXISTING GRADE

FINISHED GRADE EXISTING GRADE

EASTERN PROPERTY LINE



LEFT (SOUTH) ELEVATION

PAINTED METAL FLASHING OVER 2x10 BELLY BAND

356'
355'
354'

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ELEVATIONS

MERLINO RESIDENCE

4225 89TH AVE SE MERCER ISLAND, WA 98040

REVISED

1/4"=1'-0"

SCALE

11.10.2020

DATE

MERCER ISLAND

COMPUTER FILE NAME

A7

SHEET NUMBER

MAXIMUM ALLOWED BUILDING HEIGHT (384.66')

AVERAGE BUILDING ELEVATION (354.66')



REAR (WEST) ELEVATION

FINISHED GRADE EXISTING GRADE

FINISHED GRADE EXISTING GRADE

MAXIMUM ALLOWED BUILDING HEIGHT (384.66')

AVERAGE BUILDING ELEVATION (354.66')

EASTERN PROPERTY LINE

356'
355'
354'



RIGHT (NORTH) ELEVATION

FINISHED GRADE
EXISTING GRADE

FINISHED GRADE
EXISTING GRADE

FINISHED

DRÖBST
DESIGN WORKS



dan@drobstdesignworks.com
206.409.6690

ELEVATIONS

MERLINO RESIDENCE

4225 89TH AVE SE MERCER ISLAND, WA 98040

REVISED

1/4"=1'-0"

SCALE

11.10.2020

DATE

MERCER ISLAND

COMPUTER FILE NAME

A8

SHEET NUMBER

ROOF CONSTRUCTION

COMPOSITION ROOF ON DBL. LAYER 30# FELT o/
7/16" OSB*
2X RAFTERS OR PRE-MANUFACTURED TRUSSES o/
R-49 INSULATION (R-38 IN RAFTER AREAS) o/
1/2" G.W.B.

FLOOR CONSTRUCTION

FINISH FLOOR o/
3/4" T & G PLYWOOD o/
JOISTS PER PLAN o/
R-38 INSULATION ABOVE NON-HEATED AREAS

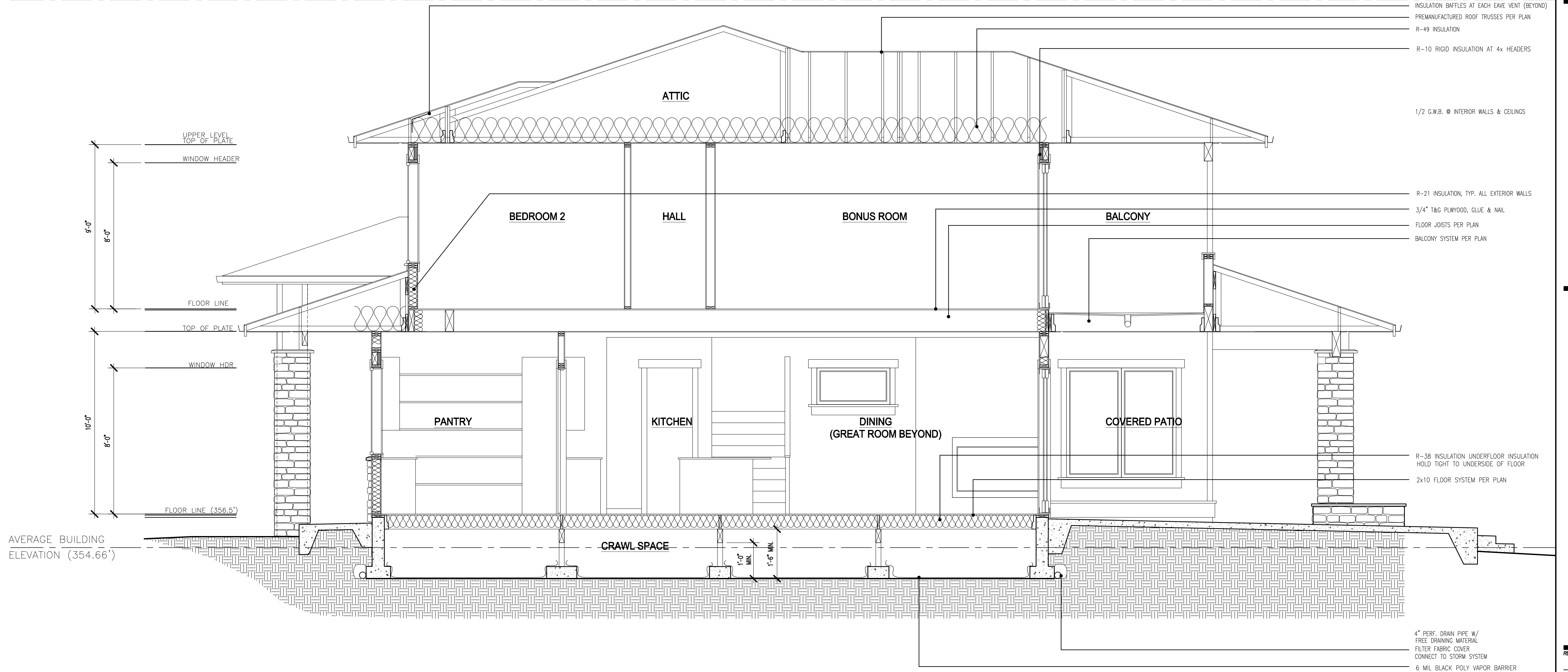
STAIR CONSTRUCTION

2x12 STRINGERS
1-1/8" PLYWOOD TREADS
5/8" TYPE X GWB @ USEABLE
SPACE UNDER STAIRS
FIREBLOCK BETWEEN STUDS
ALONG RUN AND @ MID POINT
BETWEEN STRINGERS

EXTERIOR WALL CONSTRUCTION

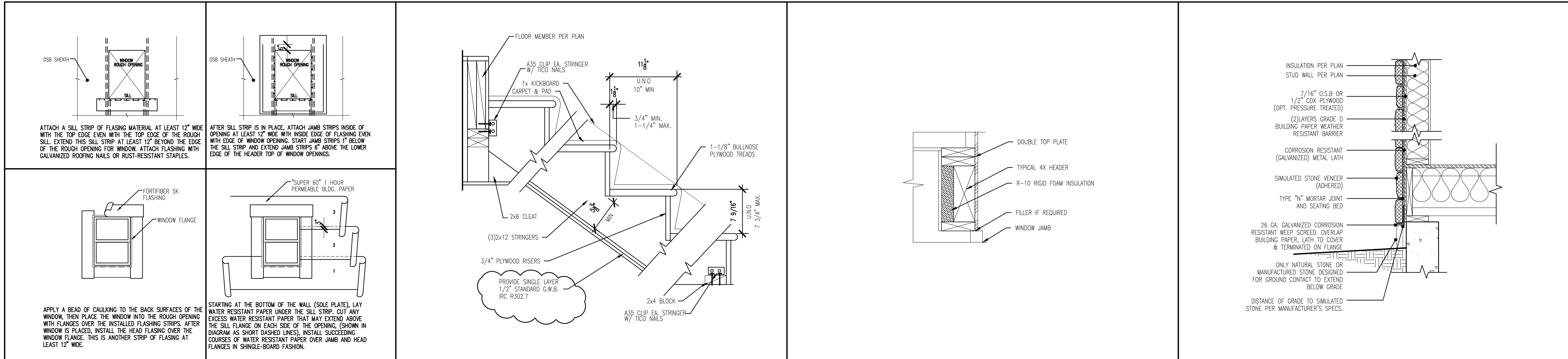
SIDING o/
7 1/2# FELT o/
1/2" RATED OSB o/
2x6 STUDS PER PLAN
R-21.0 INSULATION w/ V.B. o/
1/2" G.W.B.

MAXIMUM ALLOWED BUILDING HEIGHT (384.66')

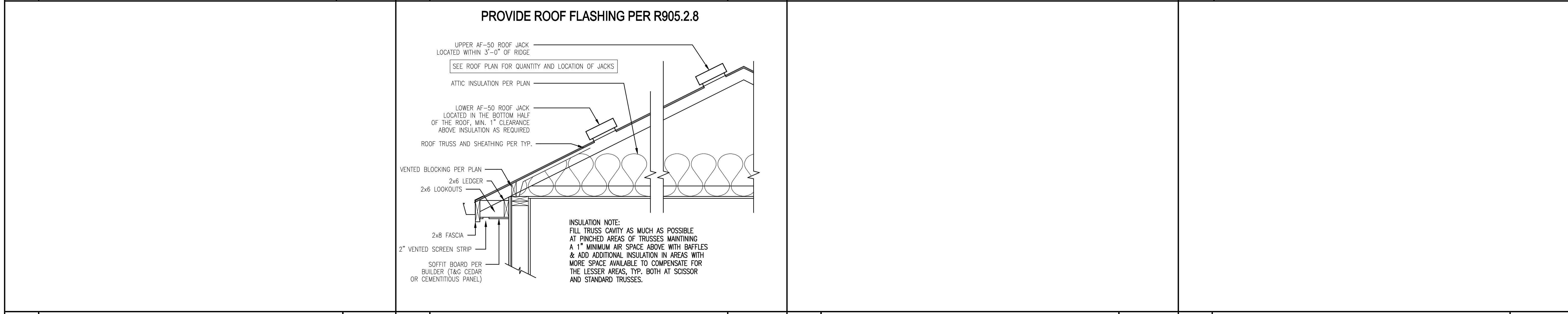
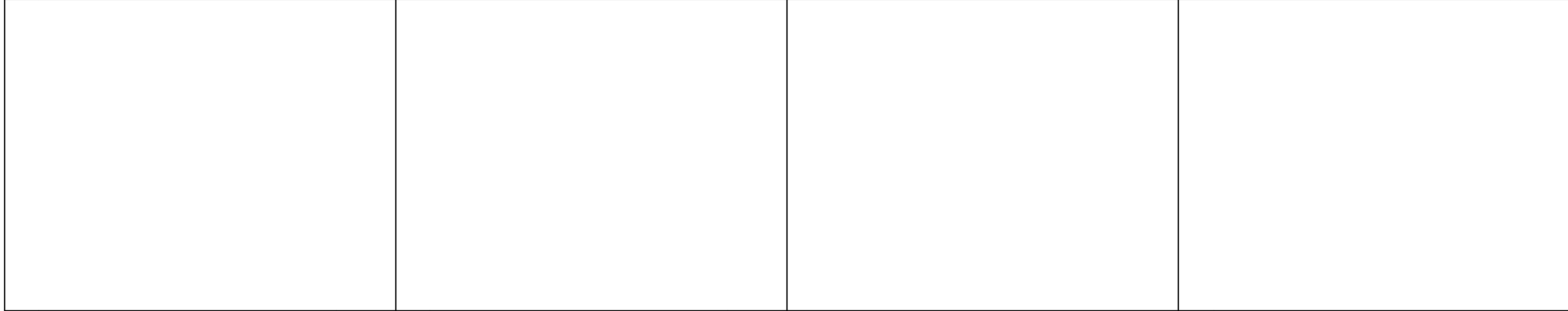


AVERAGE BUILDING
ELEVATION (354.66')

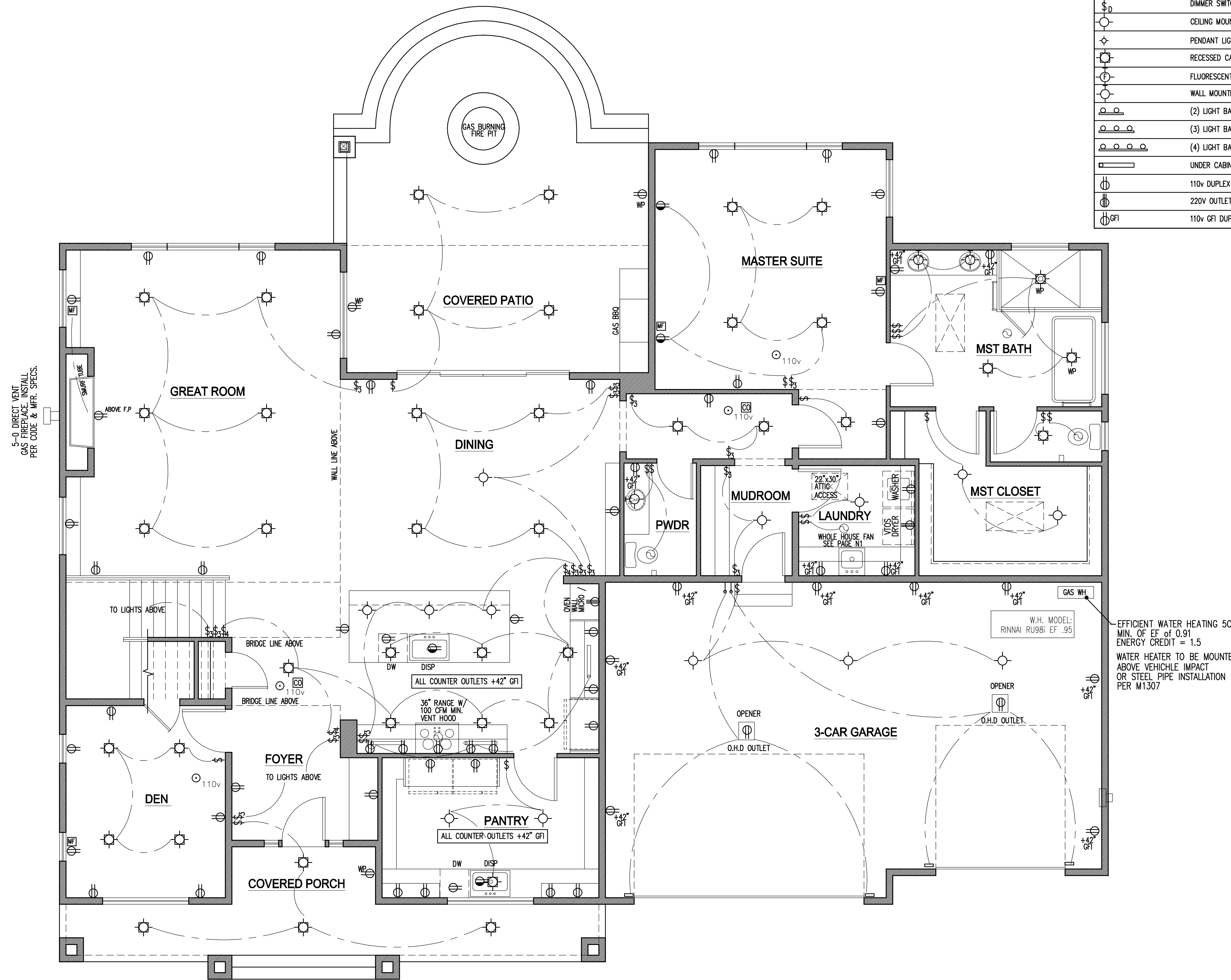
SECTION AA



A WINDOW FLASHING DETAIL NONE **F** TYPICAL STAIR DETAIL 3/4" = 1' **K** INSULATED HEADER NTS **M** ADHERED STONE VENEER DETAIL 1"=1'-0"



S ROOF VENT DIAGRAM 3/4" = 1'



ELECTRICAL LEGEND			
\$	STANDARD SWITCH	⊕	HALF-HOT DUPLEX OUTLET
\$3	TWO-WAY SWITCH	⊕ WP	WEATHER-PROOF DUPLEX OUTLET
\$D	DIMMER SWITCH	⊠	CARBON MONOXIDE DETECTOR
⊙	CEILING MOUNT FIXTURE	⊙	SPECIAL PURPOSE CONNECTION
⊕	PENDANT LIGHT FIXTURE	⊙	EXHAUST FAN (MIN 50 CFM.)
⊕	RECESSED CAN		
⊕	FLUORESCENT WALL MOUNTED FIXTURE	MF	MULTI-FUNCTION (TV, PHONE, DATA)
⊕	WALL MOUNTED FIXTURE	N	NETWORK JACK
⊕	(2) LIGHT BAR LIGHT	↑	REMOTE BUTTON
⊕	(3) LIGHT BAR LIGHT	⊕	THERMOSTAT
⊕	(4) LIGHT BAR LIGHT	⊕	DOOR BELL RINGER
⊕	UNDER CABINET LIGHTS	⊕	PHOTO-EYE AT GARAGE DOOR
⊕	110v DUPLEX OUTLET	⊕ SD	SMOKE DETECTOR W/ BATTERY BACK-UP
⊕	220V OUTLET	COMBO	FAN / LIGHT COMBINATION
⊕ GFI	110v GFI DUPLEX OUTLET		

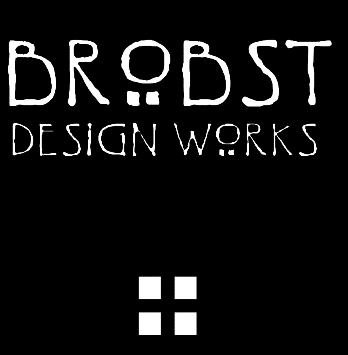
⊙ DENOTES MIN. 50 CFM EXHAUST FAN, UNO ALL FANS MUST VENT TO THE OUTSIDE

⊕ DENOTES SMOKE DETECTOR LOCATION ALL SMOKE DETECTORS TO BE 110V. INTERCONNECTED WITH BATTERY BACK-UP

⊠ CARBON MONOXIDE DETECTOR TO BE 110V WITH BATTERY BACK-UP. REQUIRED ON EACH LEVEL AND ADJACENT TO ALL SLEEPING AREAS

NOTE:
ANY RECESSED LIGHT FIXTURE IS TO HAVE PROPER PROTECTION SO THAT THE FIXTURE WILL NOT BECOME OVERHEATED

ENERGY NOTES:
(SEE PAGE N1 AND N2 FOR ADD'L INFORMATION)
- HVAC CONTROLS WITH PROGRAMMABLE SCHEDULE PER WSEC 403.1.1
- 75% OF ALL LIGHTING FIXTURES SHALL BE HIGH-EFFICACY EQUIPPED PER WSEC 404.1



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MAIN LEVEL ELECTRICAL PLAN

MERLINO RESIDENCE

4225 89TH AVE SE MERCER ISLAND, WA 98040

REVISED

1/4"=1'-0"

SCALE

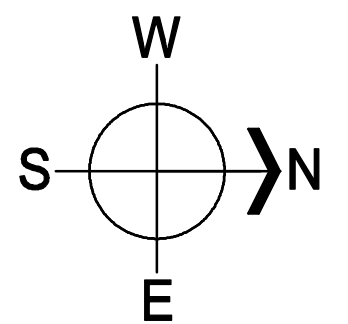
11.10.2020

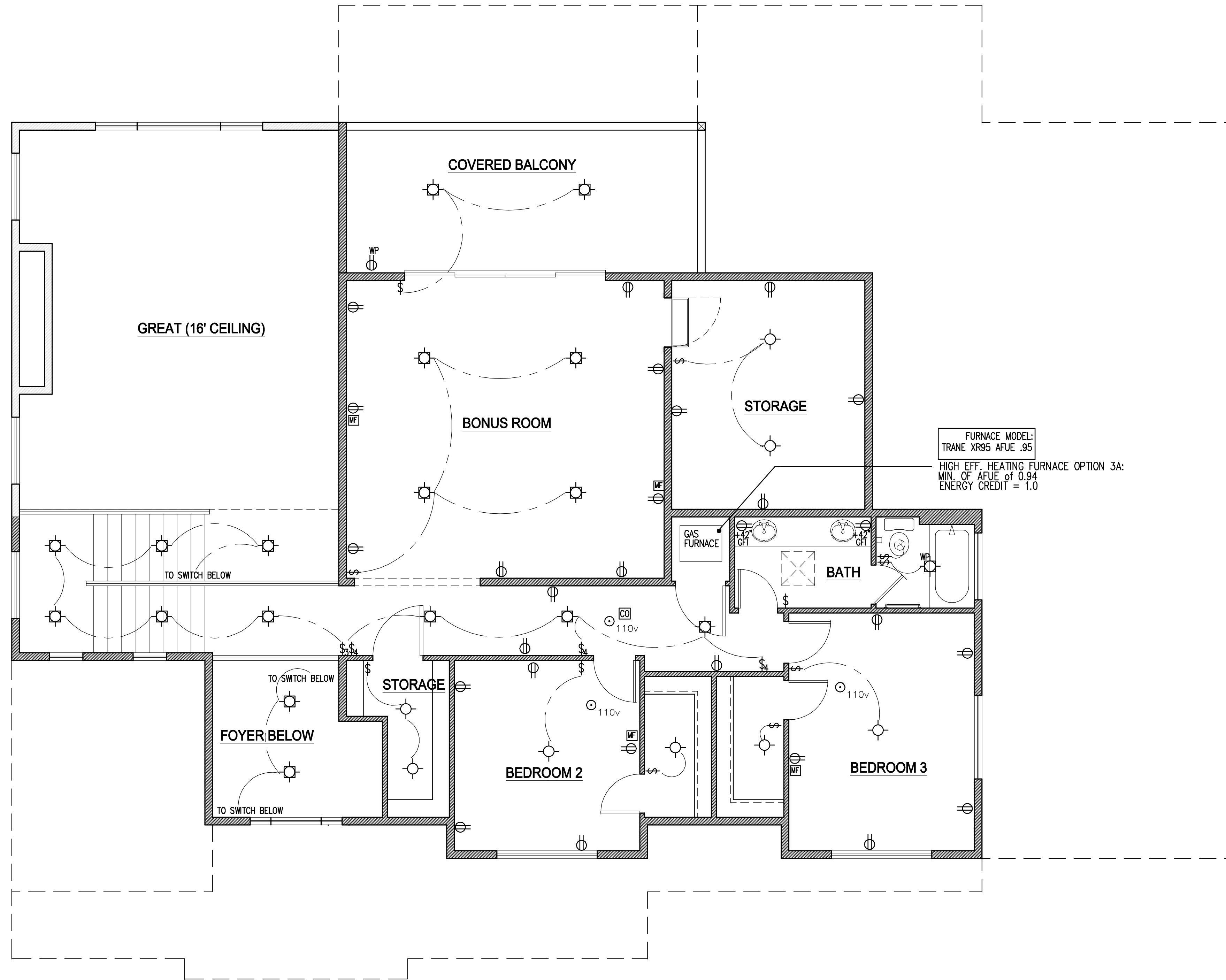
DATE

COMPUTER FILE NAME

E1

SHEET NUMBER





REVISED

1/4" = 1'-0"

SCALE

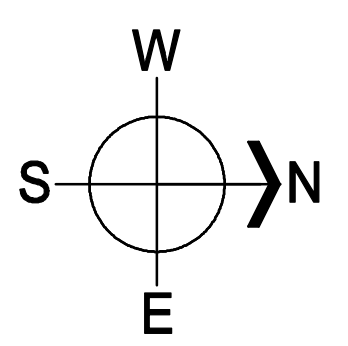
11.10.2020

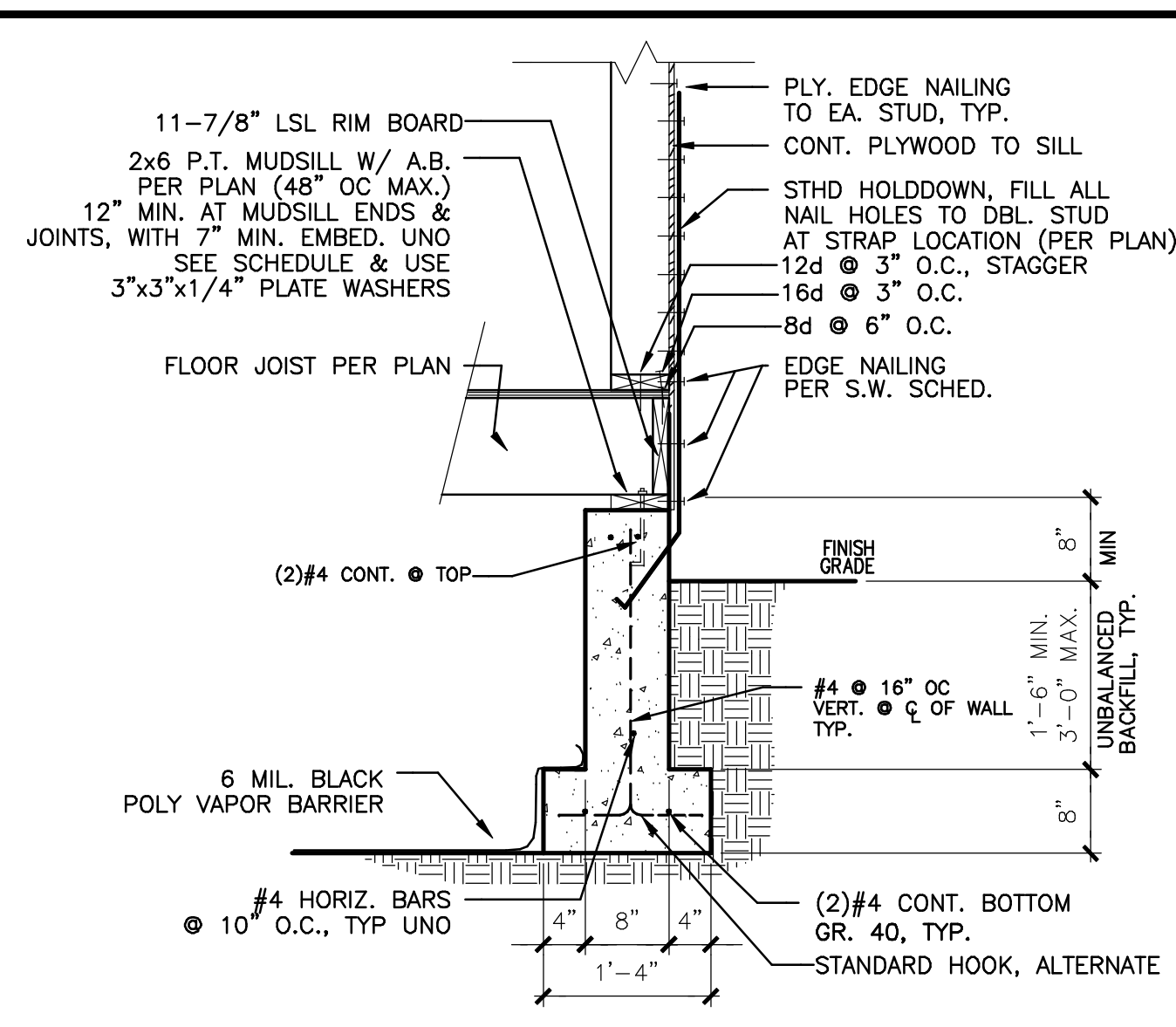
DATE

COMPUTER FILE NAME

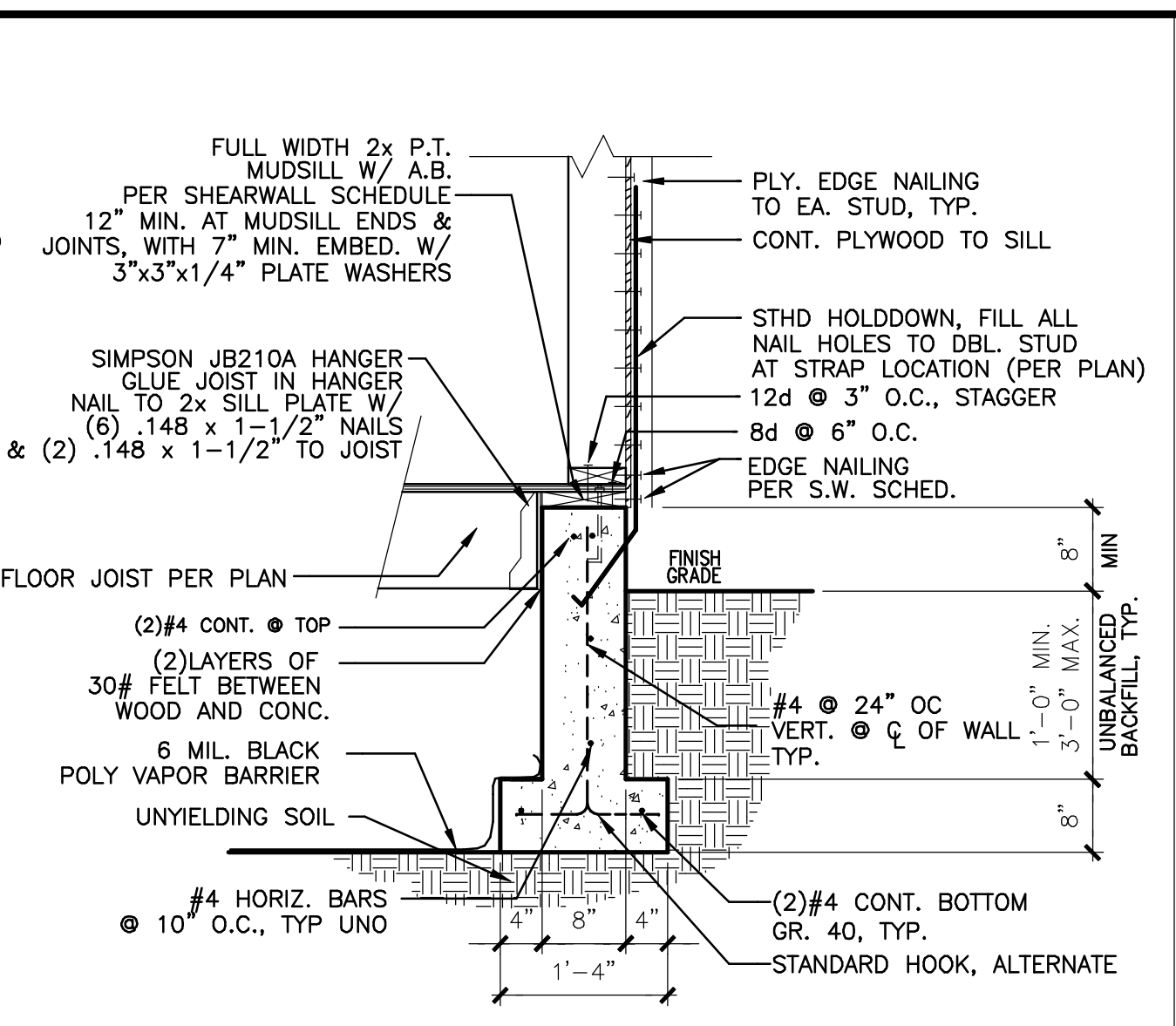
E2

SHEET NUMBER

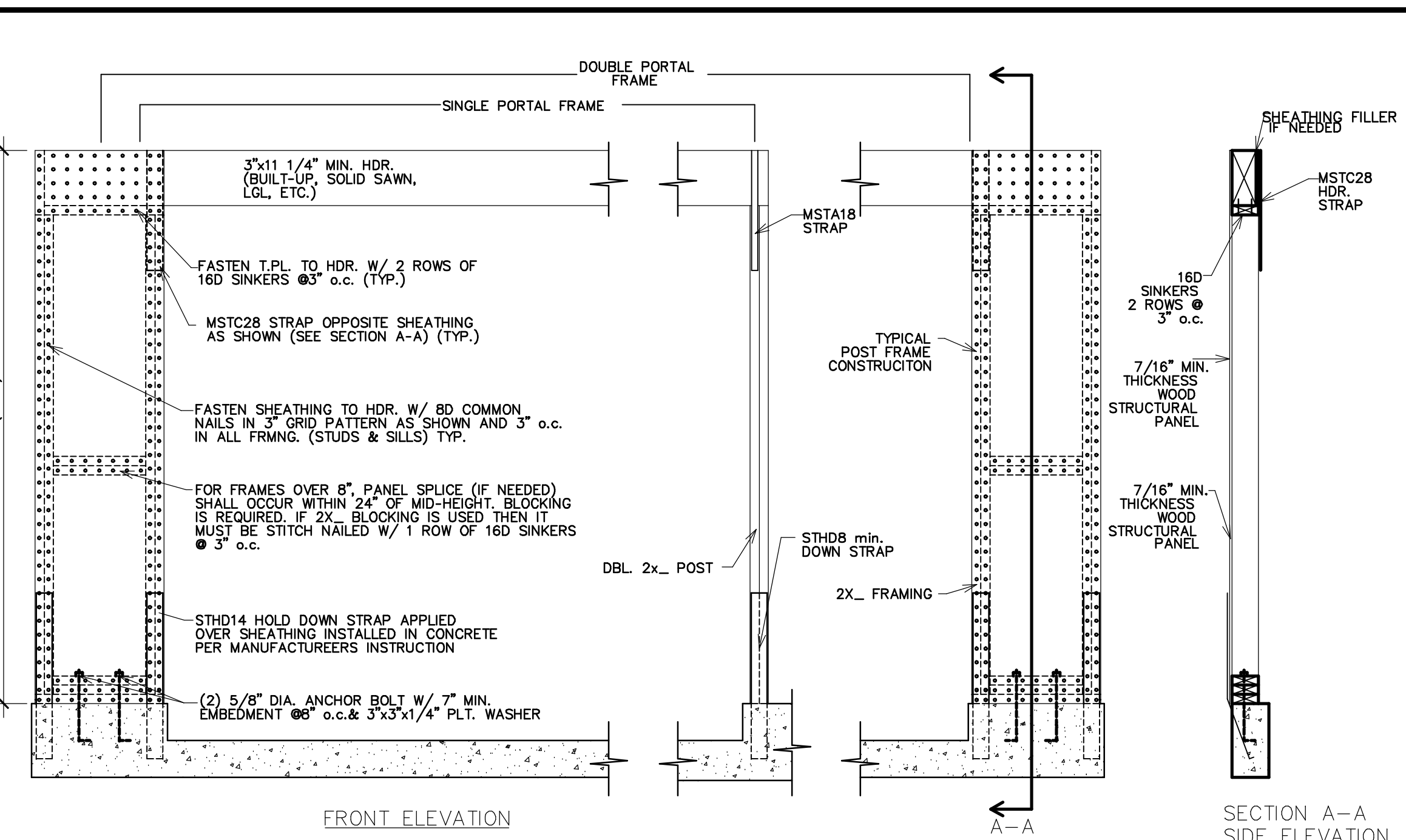




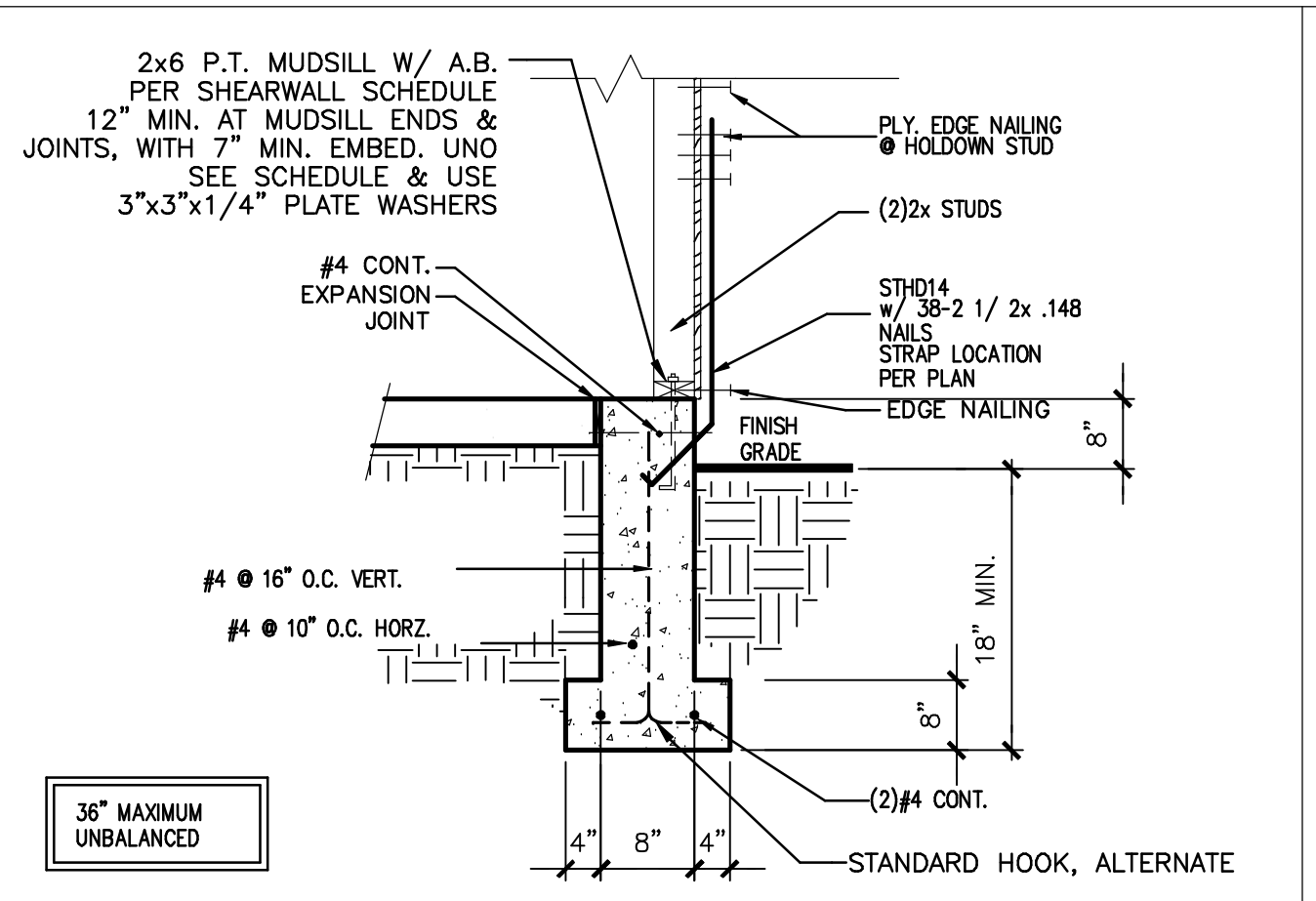
A EXTERIOR SHEARWALL @ CRAWL SPACE
3/4"=1'-0" JOISTS ON TOP OF STEM WALL



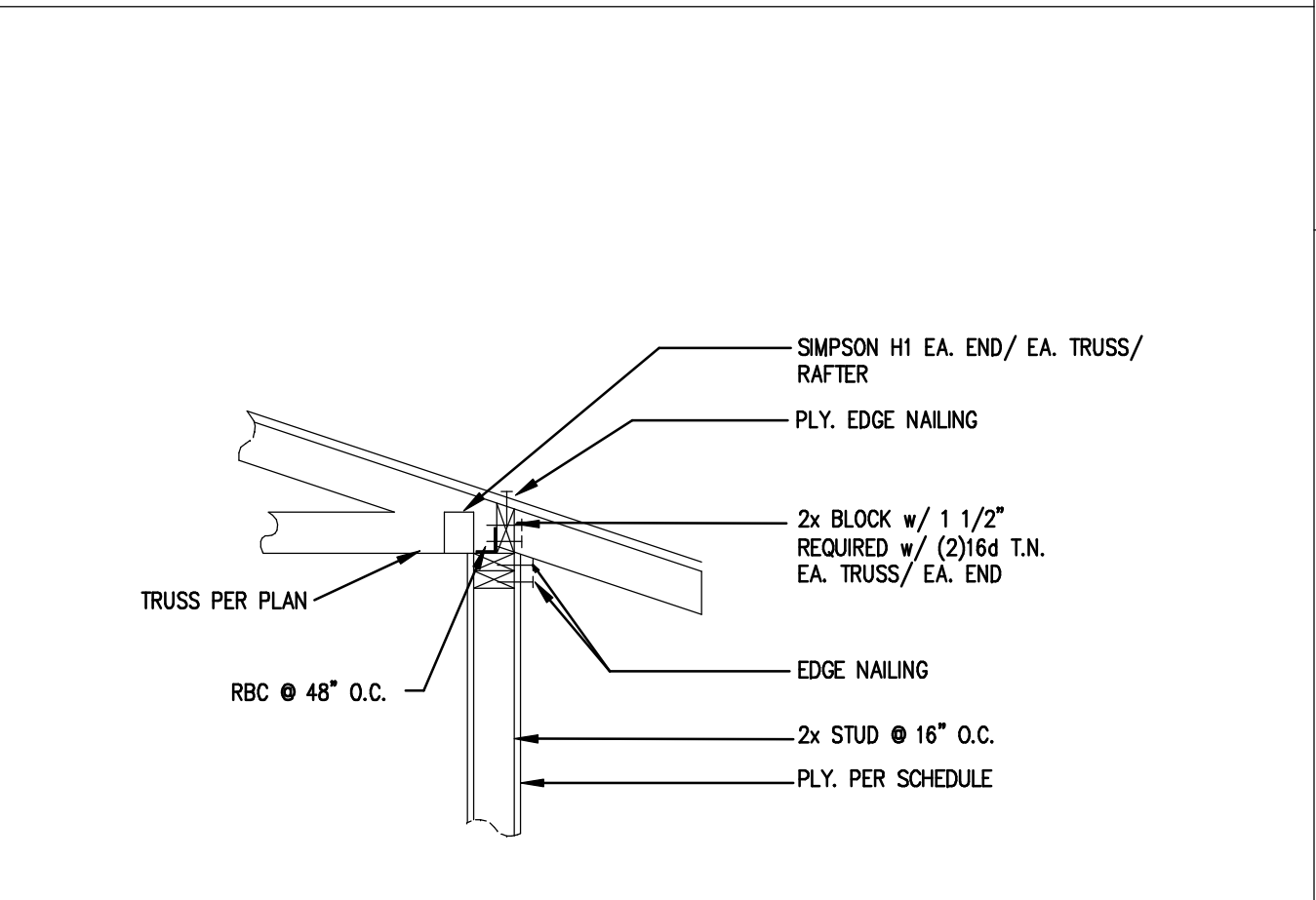
A1 EXTERIOR SHEARWALL @ CRAWL SPACE
3/4"=1'-0" JOISTS HUNG FROM TOP OF STEM WALL



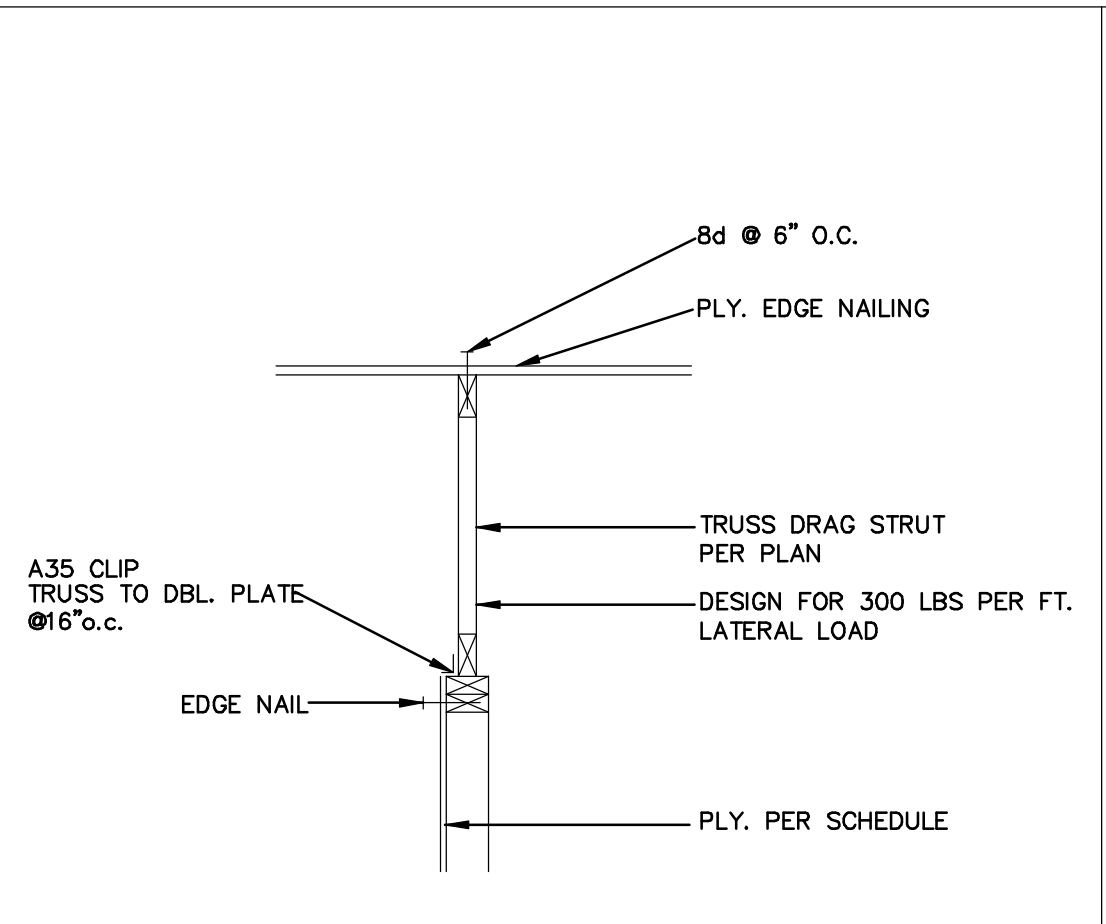
D MIN. LATERAL PANEL
1/2"=1'-0"



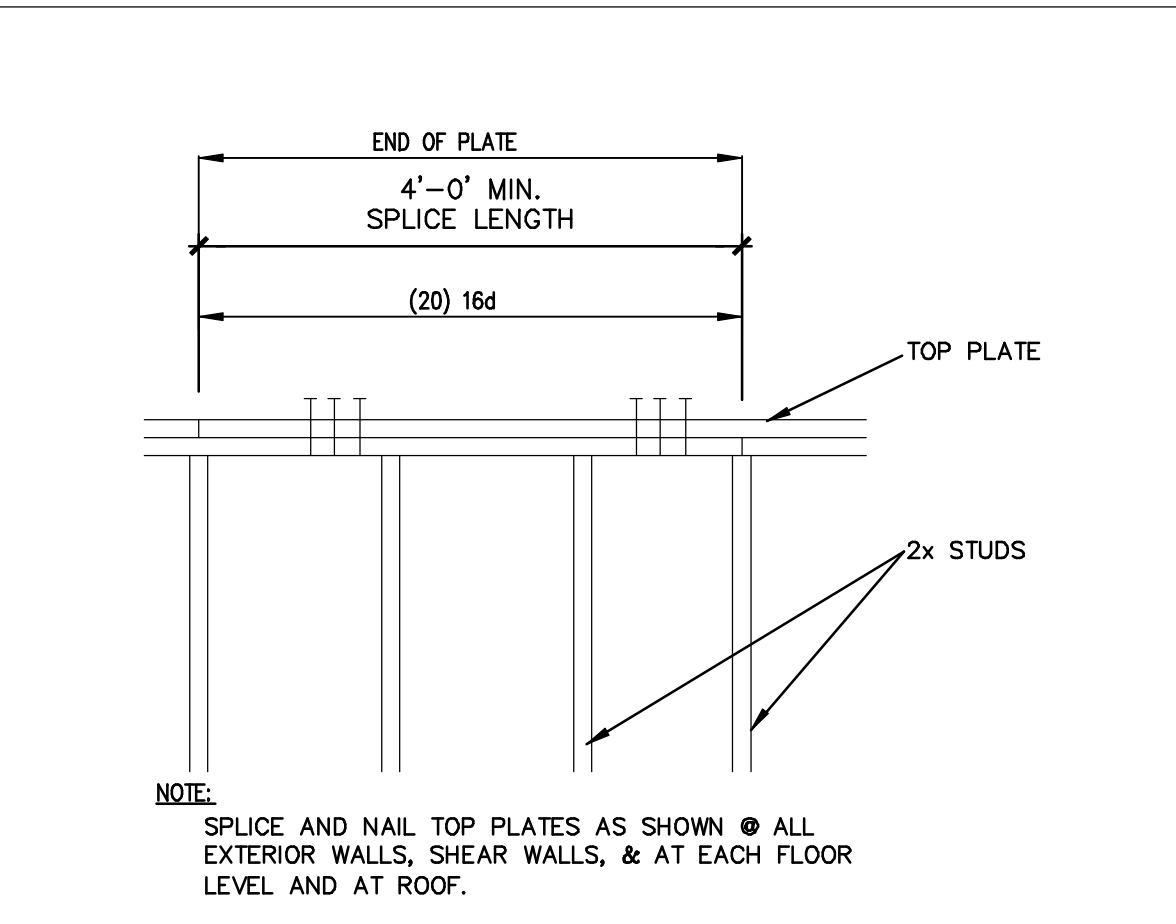
E EXT. SHEARWALL @ SLAB
3/4"=1'-0"



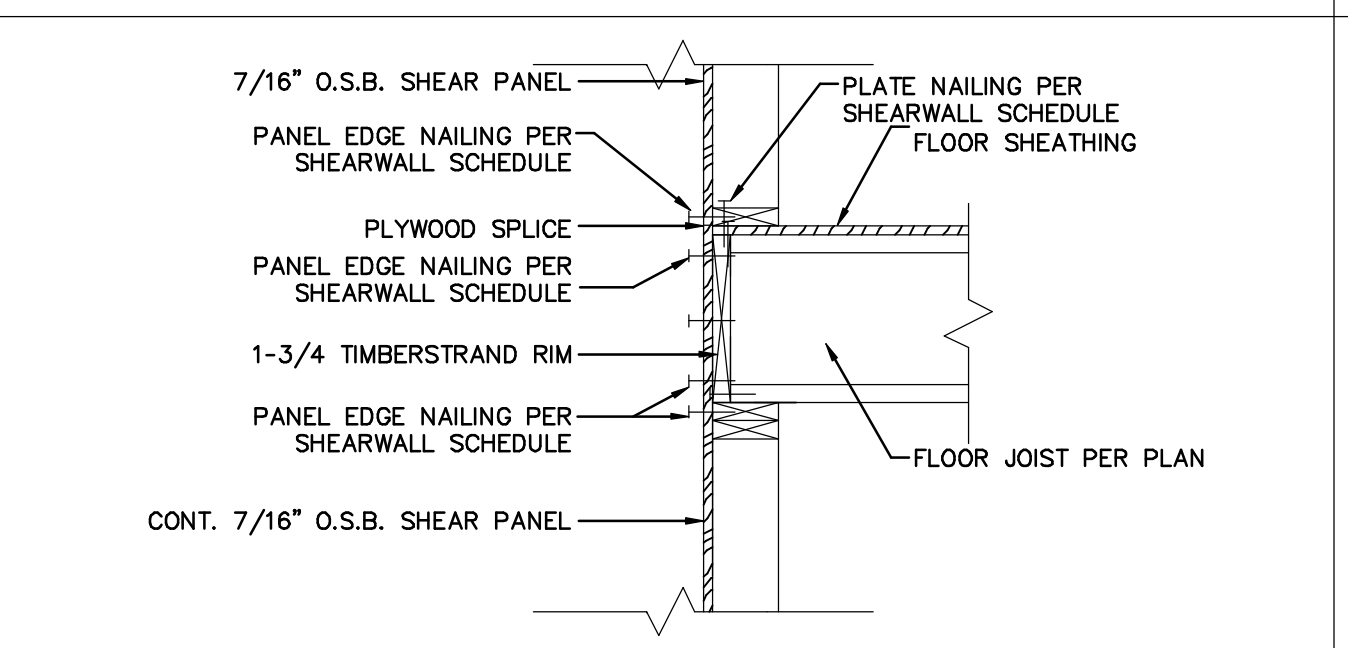
F EAVE @ ROOF
3/4"=1'-0"



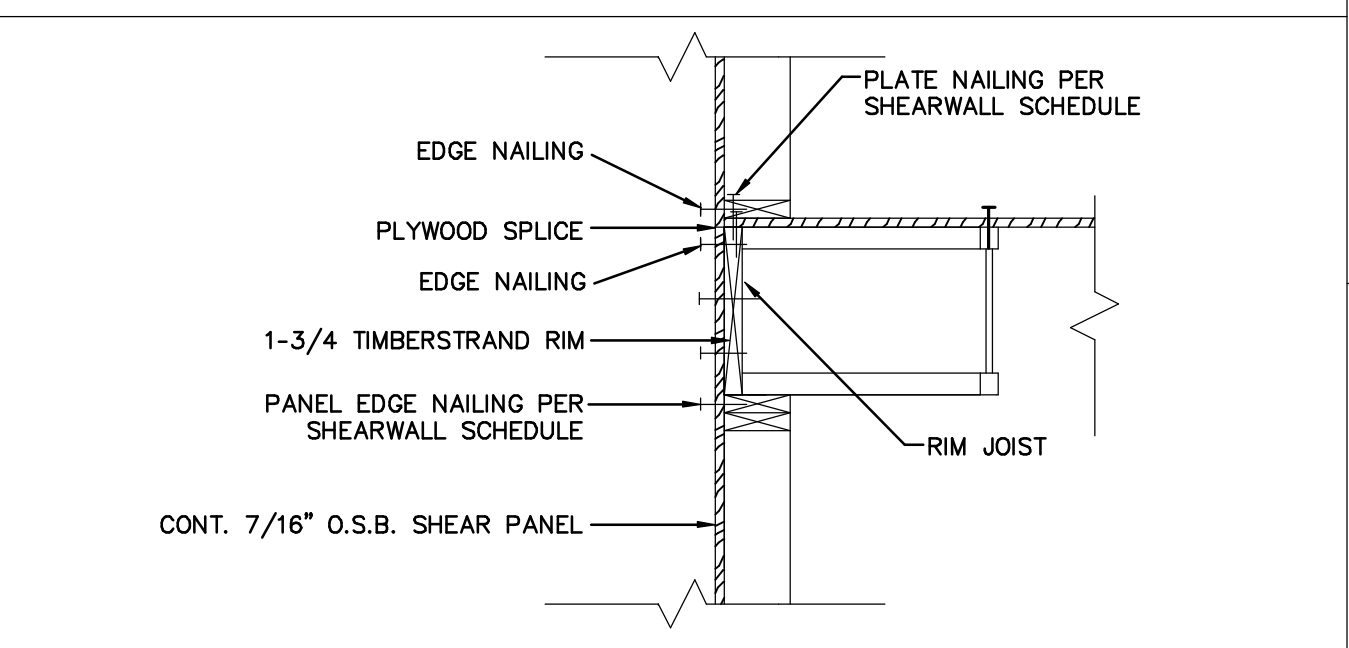
G DRAG STRUT TRUSS
3/4"=1'-0"



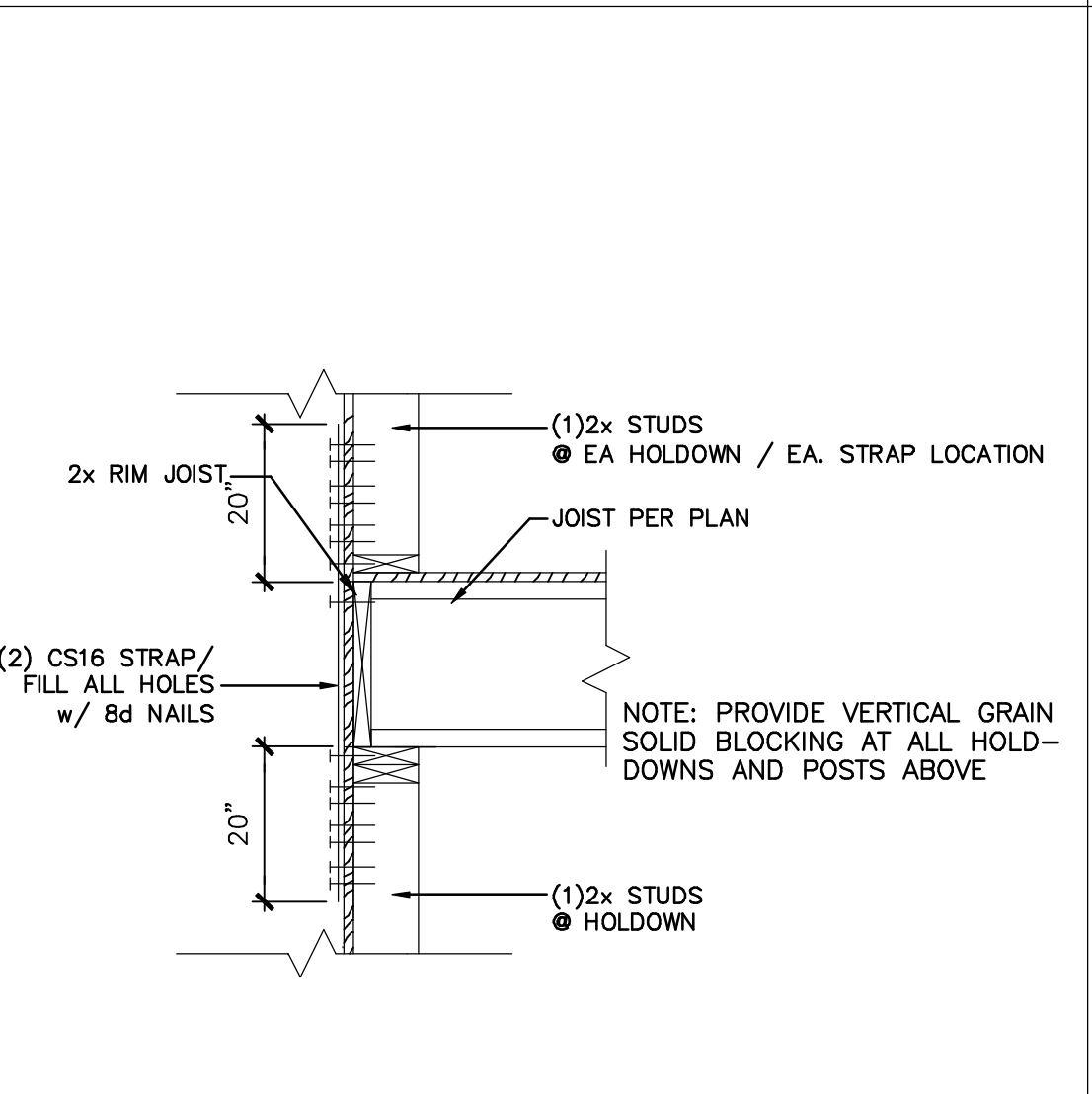
H DBL. TOP PLATE SPLICE
3/4"=1'-0"



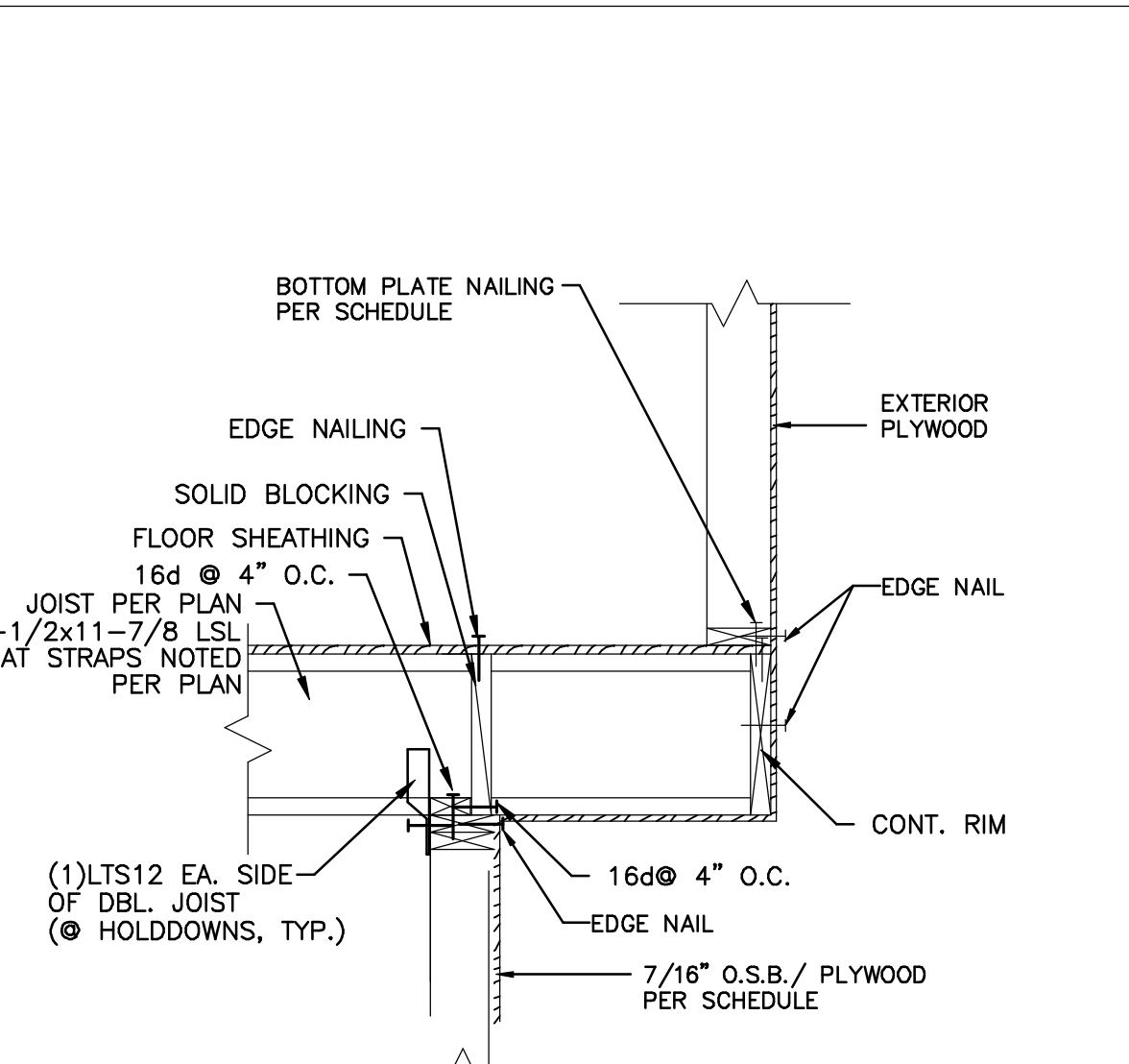
I JOIST PERPENDICULAR TO EXT. WALL
3/4"=1'-0"



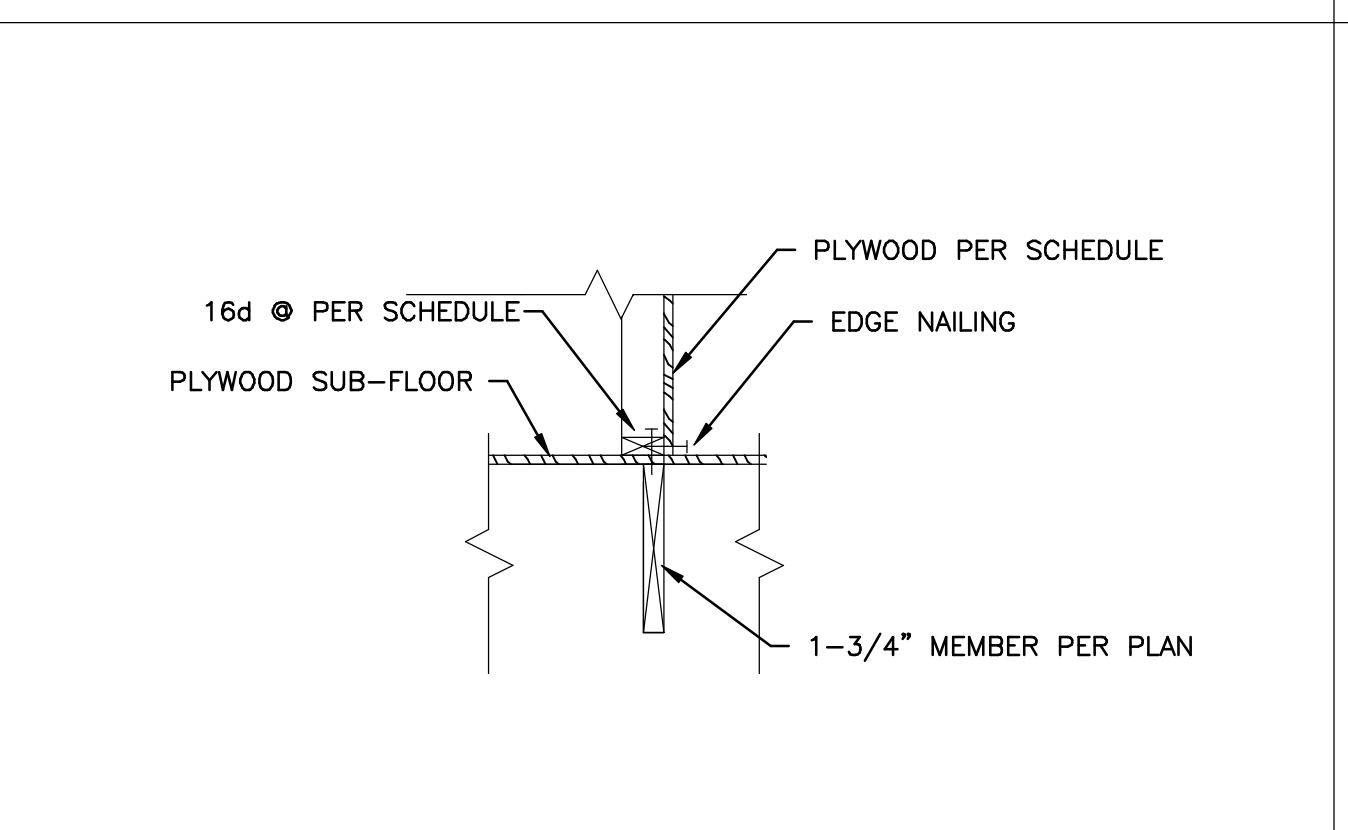
J JOIST PARALLEL TO EXTERIOR WALL
3/4"=1'-0"



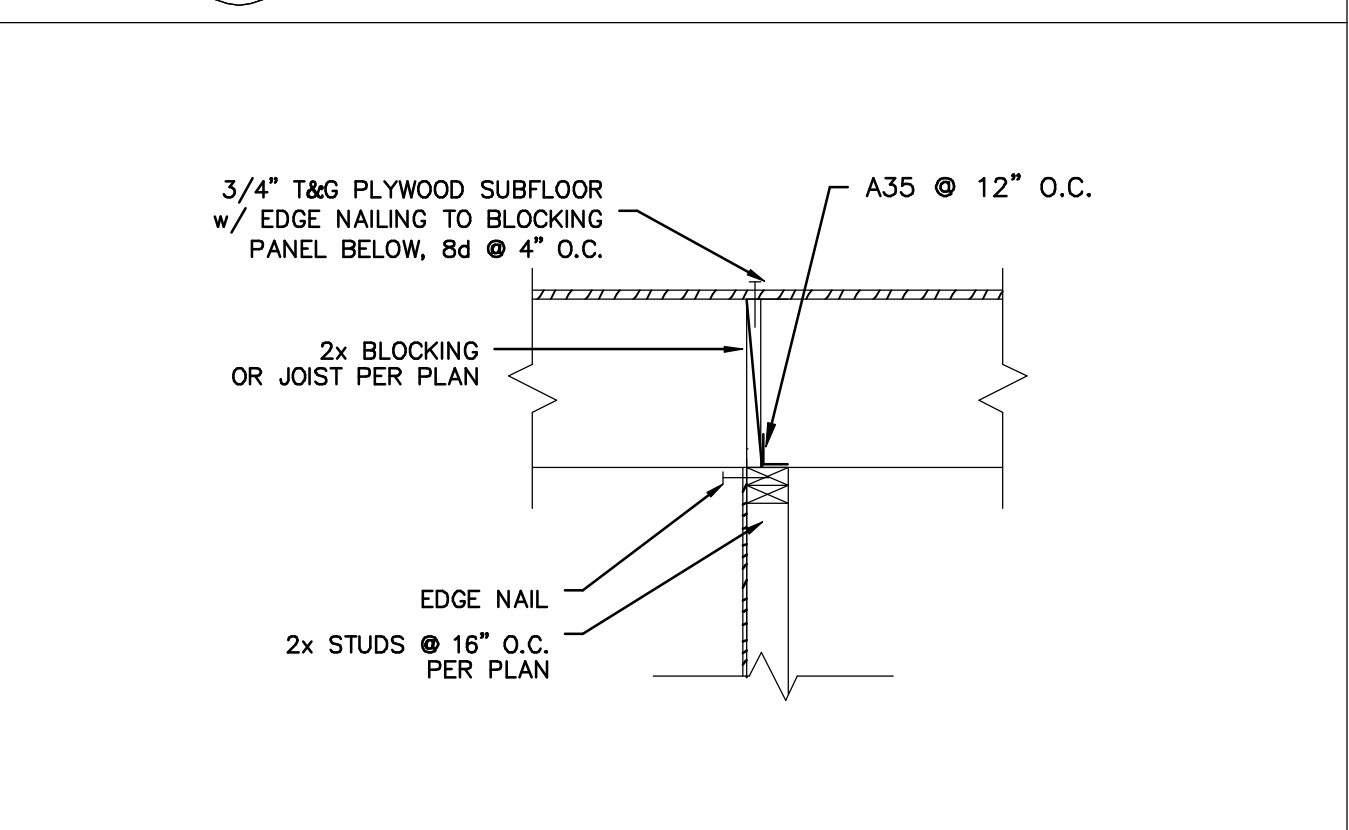
K STRAP HOLDDOWN AT FLOOR
3/4"=1'-0" SEE PLANS FOR # OF HOLD-DOWNS



O CANT. FLOOR JOISTS
3/4"=1'-0"



L INTERIOR SHEARWALL TO FLOOR
3/4"=1'-0"



M INT. SHEARWALL TO FLOOR ABV.
3/4"=1'-0"

TYP. EXT. WALL CONSTRUCTION

SW-6 INDICATES SHEARWALL w/ PLYWOOD ONE SIDE.

- SHEATHING: 1/2" PLYWOOD OR 7/16" O.S.B., EXTERIOR SIDE, BLOCKED, NAIL w/ 8d @ 6" O.C. ALL EDGES AND @ 12" O.C. FIELD.
- BOLT SILL PLATE TO CONCRETE w/ 5/8" DIA. x 10" A.B.'S @ 48" O.C.
- NAIL BOTTOM PLATE TO FRAMING BELOW w/ 16d @ 4" O.C.
- FASTEN DOUBLE PLATE TO JOIST OR BLOCKING ABOVE PER DETAILS ON S1 & S2 (CAPACITY: 240 LB/FT)

SHEARWALL SCHEDULE

SW-4 INDICATES SHEARWALL w/ PLYWOOD ONE SIDE.

- SHEATHING: 1/2" PLYWOOD OR 7/16" O.S.B., ONE SIDE, BLOCKED, NAIL w/ 8d @ 4" O.C. ALL EDGES AND 12" O.C. FIELD.
- BOLT SILL PLATE TO CONCRETE w/ 5/8" DIA. x 10" A.B.'S @ 32" O.C.
- NAIL BOTTOM PLATE TO FRAMING BELOW w/ 16d @ 3-1/2" O.C.
- FASTEN DOUBLE PLATE TO JOIST OR BLOCKING ABOVE PER DETAILS ON S1 & S2 (CAPACITY: 350 LB/FT)

SW-3 INDICATES SHEARWALL w/ PLYWOOD ONE SIDE.

- SHEATHING: 1/2" PLYWOOD OR 7/16" O.S.B., ONE SIDE, BLOCKED, NAIL w/ 8d @ 3" O.C. ALL EDGES AND 12" O.C. FIELD.
- a. BOLT (3)X SILL PLATE TO CONCRETE w/ 5/8" DIA. x 12" A.B.'S @ 16" O.C. @ D/S1 b. OR BOLT (2)X SILL PLATE TO CONCRETE w/ 5/8" DIA. x 10" @ 24" O.C.
- NAIL BOTTOM PLATE TO FRAMING BELOW w/ 16d @ 3-1/2" O.C.
- FASTEN DOUBLE PLATE TO JOIST OR BLOCKING ABOVE PER DTL.S. ON S1 & S2.
- USE (2)X STUDS @ 16" O.C. OR DETAIL D/ S1. & (2)X STUDS @ ABUTTING PANEL JOINTS.

TYPICAL ROOF SHEATHING

7/16" O.S.B. PLYWOOD, INDEX 40/20, UNBLOCKED, w/ FACE GRAIN (STRONG AXIS) PERPENDICULAR TO FRAMING BELOW. NAIL AS FOLLOWS:

DIAPHRAM BOUNDARY, OVER SHEARWALLS & DRAG STRUTS: 8d @ 6" O.C.

ALL SUPPORTED EDGES: 8d @ 6" O.C.

FIELD: 8d @ 12" O.C.

TYPICAL FLOOR SHEATHING

3/4" T&G O.S.B., INDEX 40-20, UNBLOCKED, LAID UP w/ FACE GRAIN PERPENDICULAR TO FRAMING BELOW, STAGGER END JOINTS, GLUE & NAIL AS FOLLOWS:

DIAPHRAM BOUNDARY AND OVER EXTERIOR WALLS, SHEARWALLS & DRAG STRUTS: 8d AT 6" OC

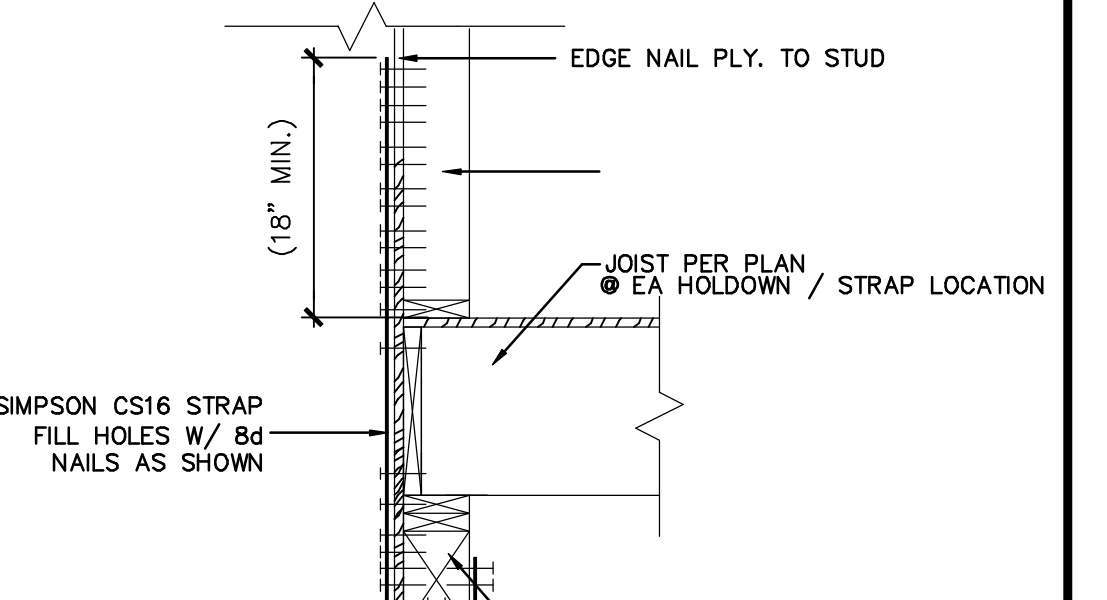
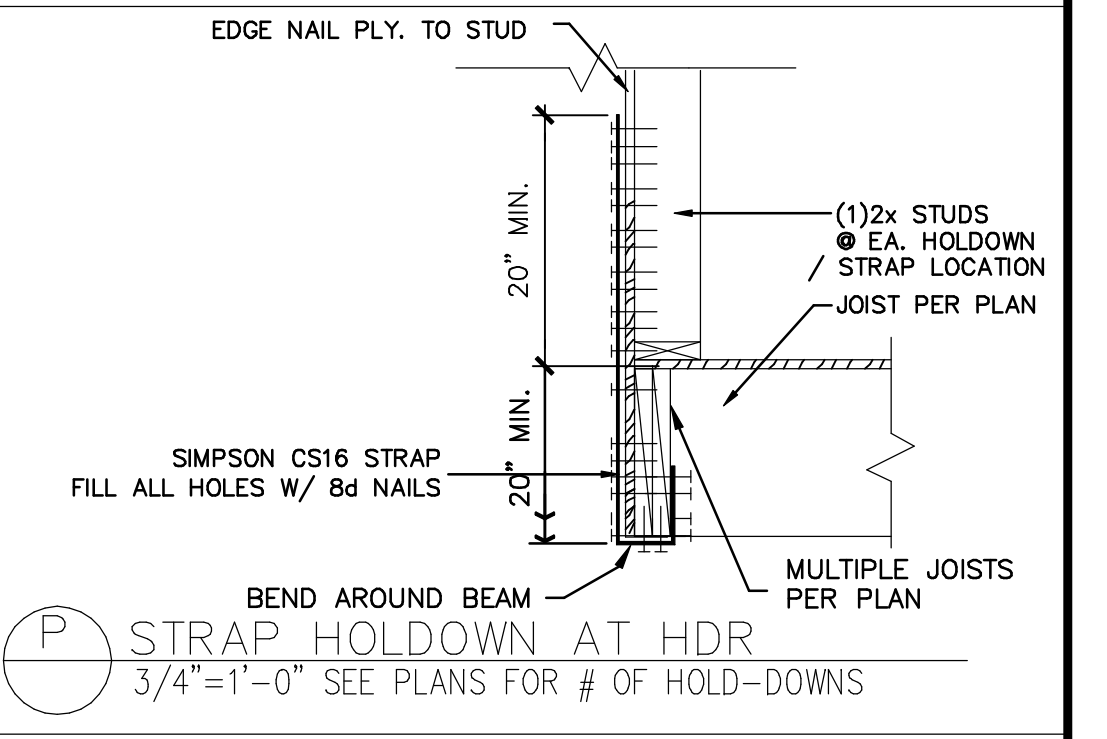
ALL SUPPORTED EDGES: 8d AT 6" OC

FIELD: 8d AT 10" OC

OPTION: USE #6 SCREWS @ 16" O.C. IN ADDITION TO NAILS SPECIFIED ABOVE

NOTES:

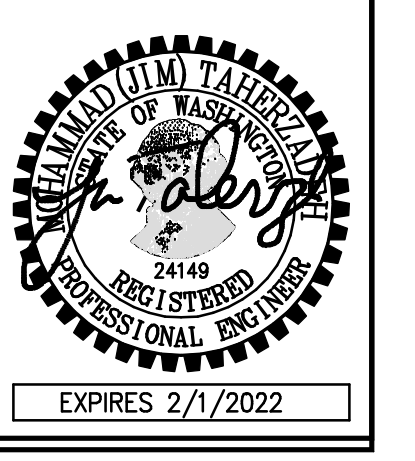
- USE 3"x3"x1/4" PLATE WASHERS ON ALL ANCHOR BOLTS.
- THE PLATE WASHER SHALL EXTEND TO WITHIN 1/2" OF THE EDGE OF THE BOTTOM PLATE OF THE SIDE(S) WITH SHEATHING PER NDS 2015 EDITION (SDPS) 4.3.6.4.3
- EXPANSION BOLTS MAY BE USED IN LIEU OF ANCHOR BOLTS w/ SAME SPACING & 4-1/2" MIN. EMBEDMENT. USE SIMPSON EPOXY SET 22XP ADHESIVE SYSTEM (OR EQUIVALENT) PER MFG. SPECIFICATIONS
- ALL POWDER DRIVEN NAILS SHALL BE 2-3/4" LONG (MIN.) x 0.156 SHANK DIA. w/ MIN. 1-1/4" PENETRATION
- USE 20d NAILS @ 3x FRAMING MEMBERS
- a. 8d NAILS SHALL BE .131 x 2-1/2" LONG b. 10d NAILS SHALL BE .148 x 3" LONG c. 16d NAILS SHALL BE .162 x 3-1/2" LONG d. 20d NAILS SHALL BE .192 x 4" LONG



P1 STRAP HOLDDOWN AT HDR
3/4"=1'-0"

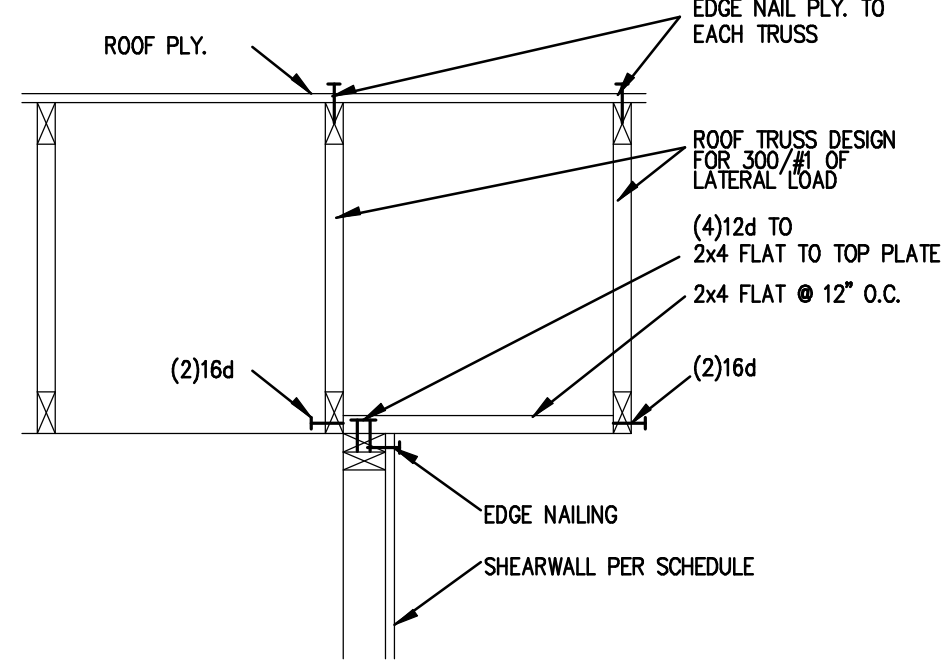
RB ENGINEERS, INC.
1312 2nd Street, Kirkland, WA 98033
Tel: (425) 822-3009, Fax: (425) 822-2679
Email: RBE1992@GMAIL.COM

MERLINO RESIDENCE
STRUCTURAL DETAILS

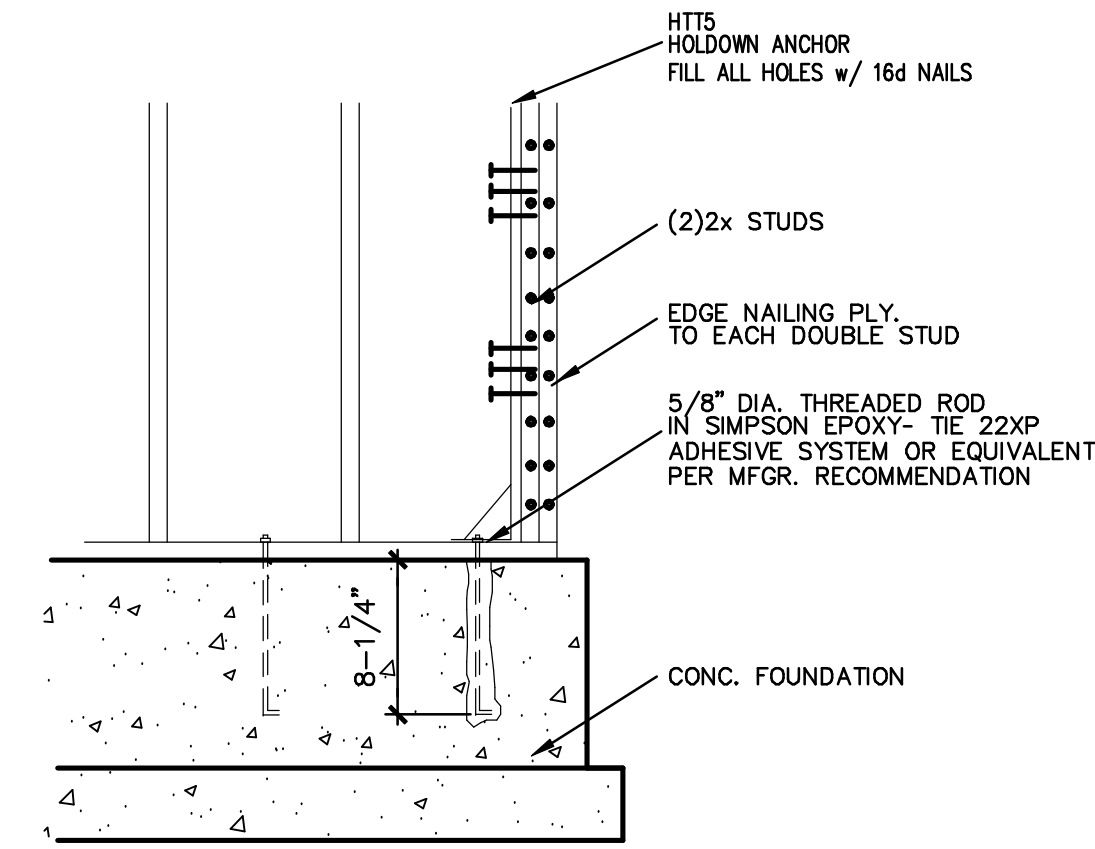


Project	
FILE NUMBER	
DRAWN BY	
Date	11.10.2020

Sheet
S1

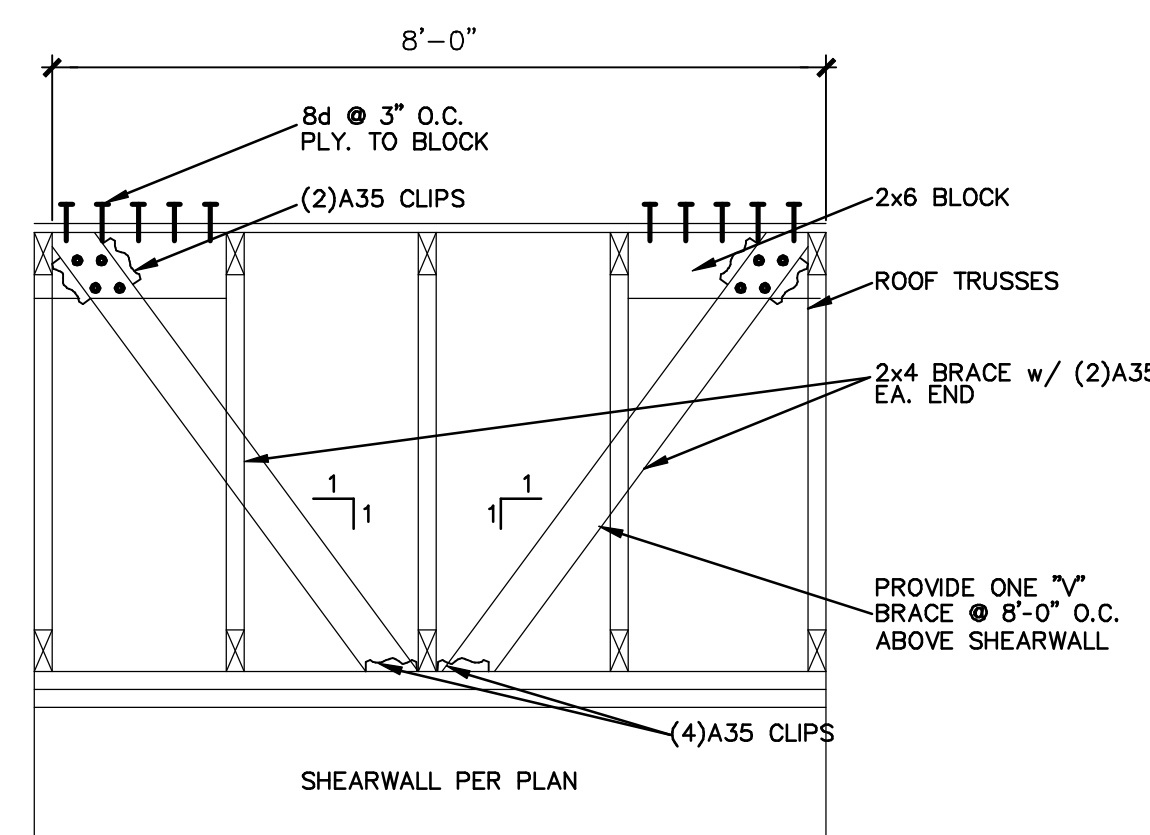


Q ROOF TRUSS PARALLEL TO S.W.
3/4"=1'-0"

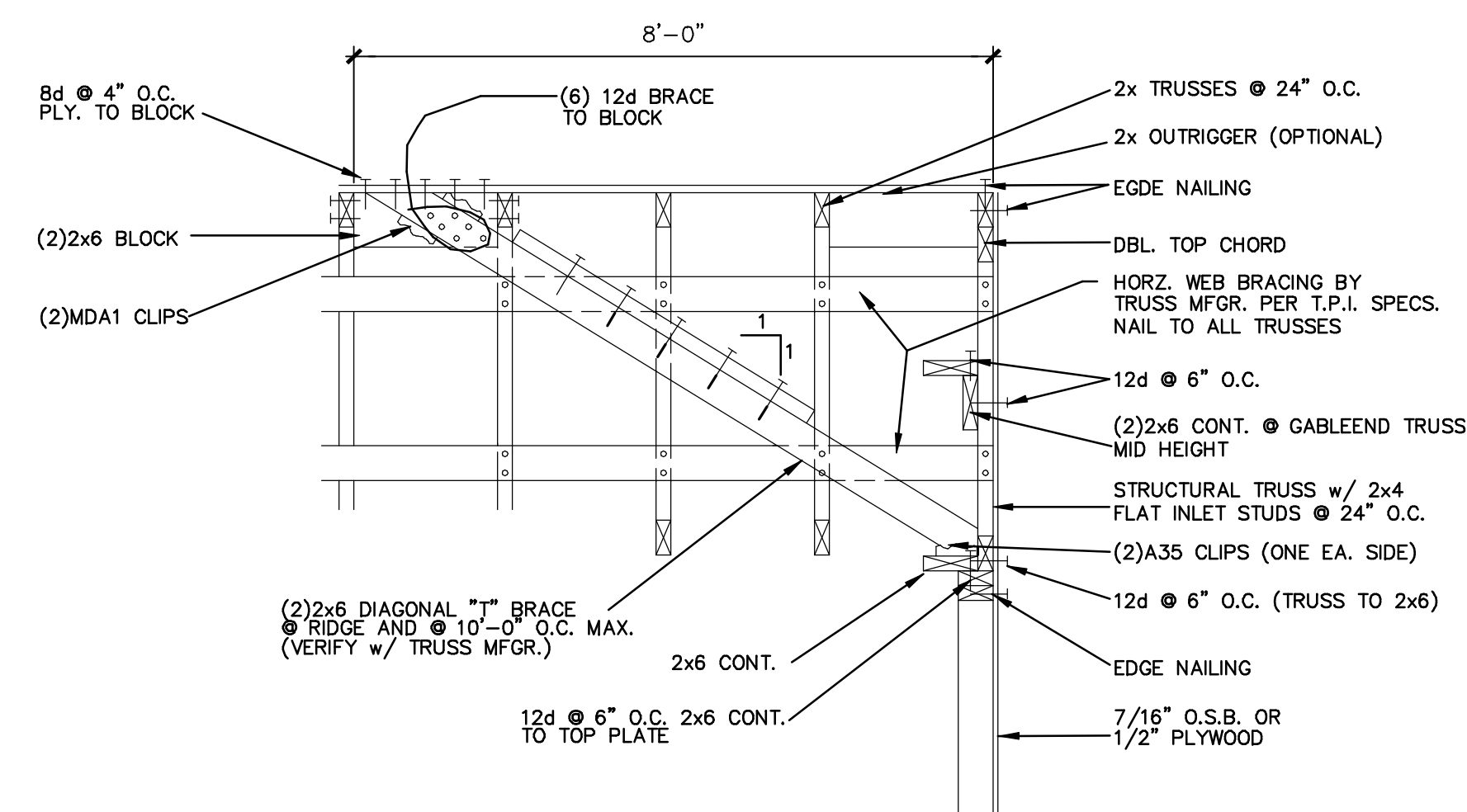


R TYP. HOLDOWN TO EXISTING FOOTING
3/4"=1'-0"

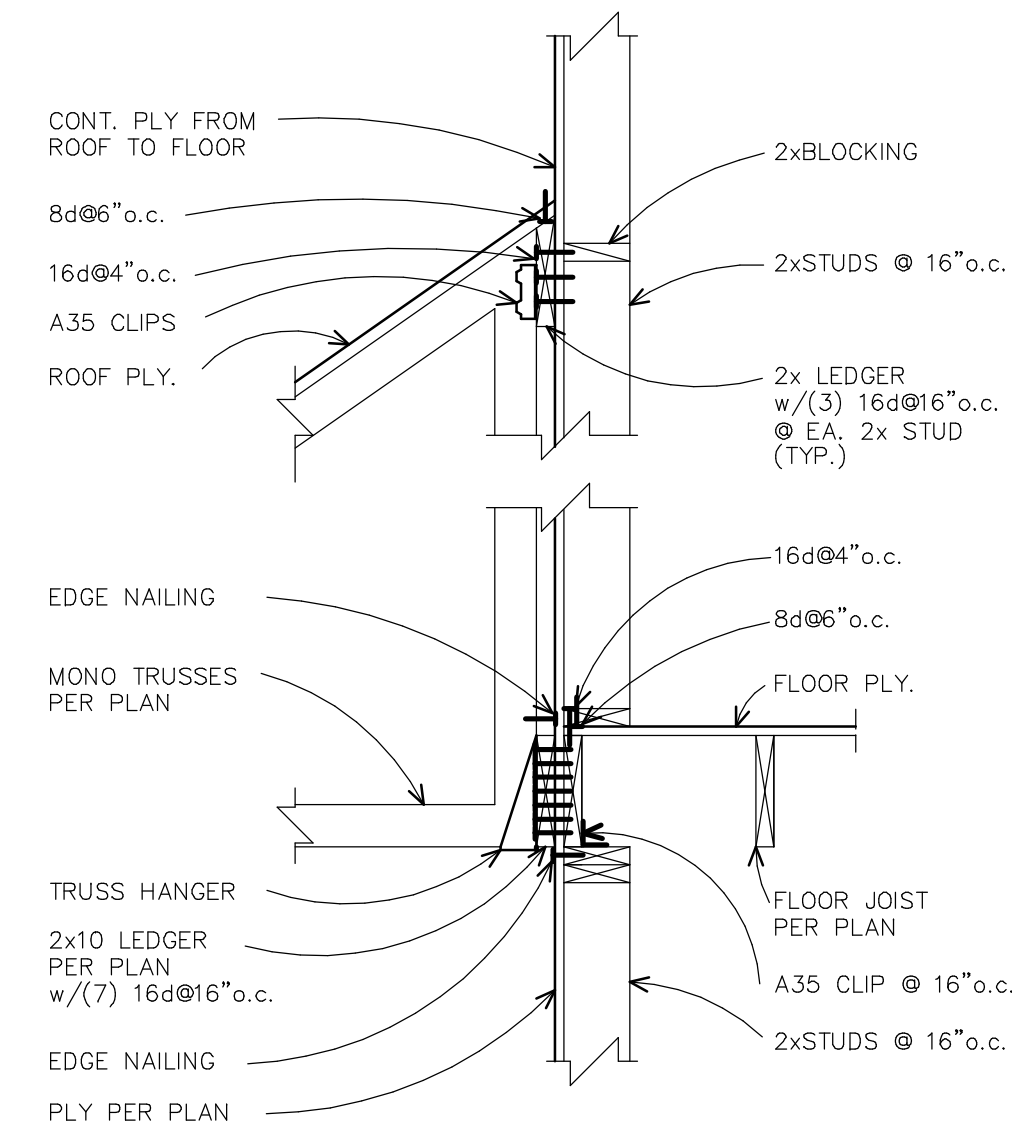
ONLY TO BE USED IN REPLACEMENT OF MISPLACED HOLD-DOWN
SPECIAL INSPECTION MAY BE REQUIRED



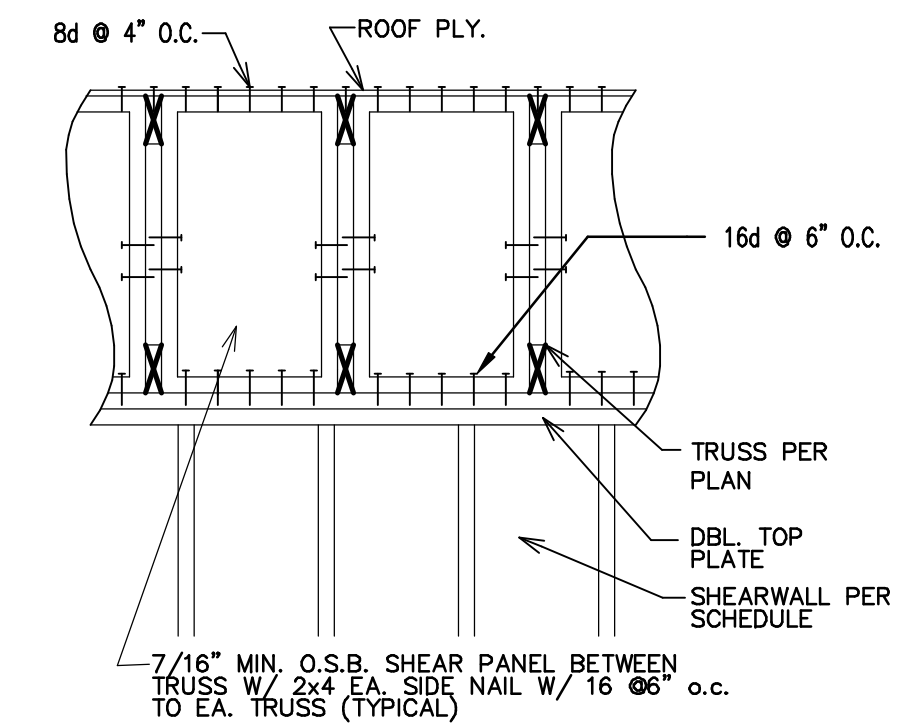
S SHEARWALL PERPENDICULAR TO ROOF TRUSSES
3/4"=1'-0"



T TYP. GABLE TRUSS DETAIL
3/4"=1'-0"

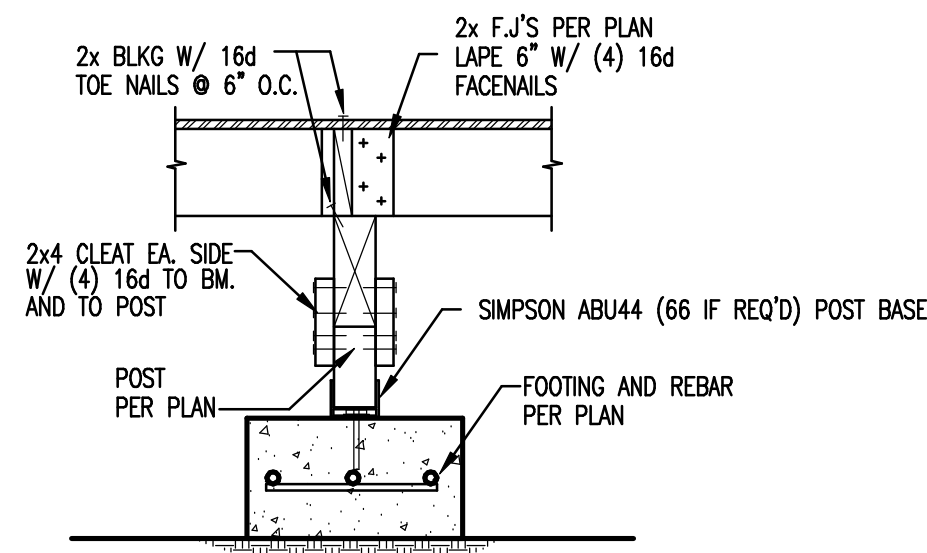


U TRUSS TO WALL CONNECTION

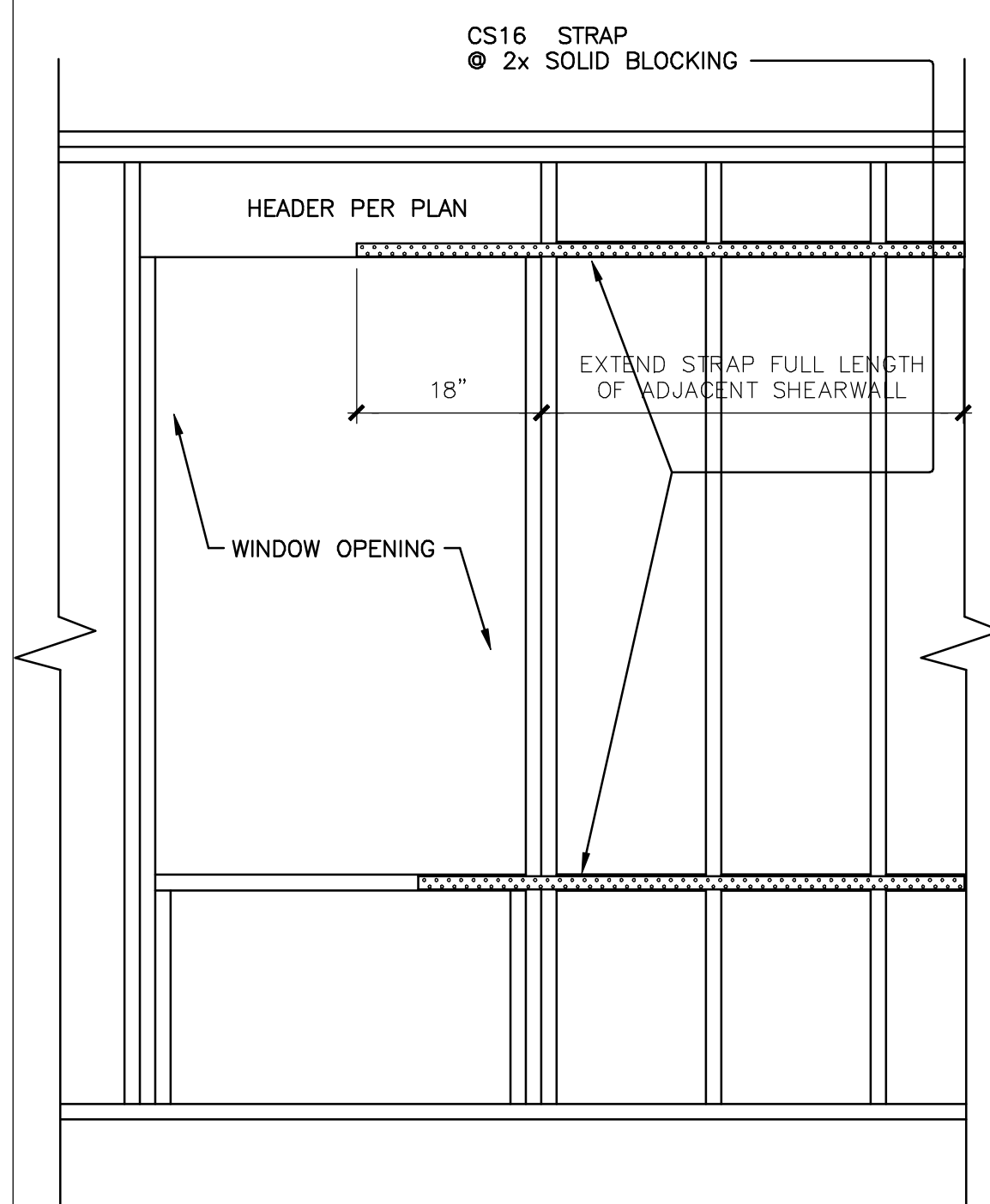


W SHEAR PANEL @ SHEARWALLS

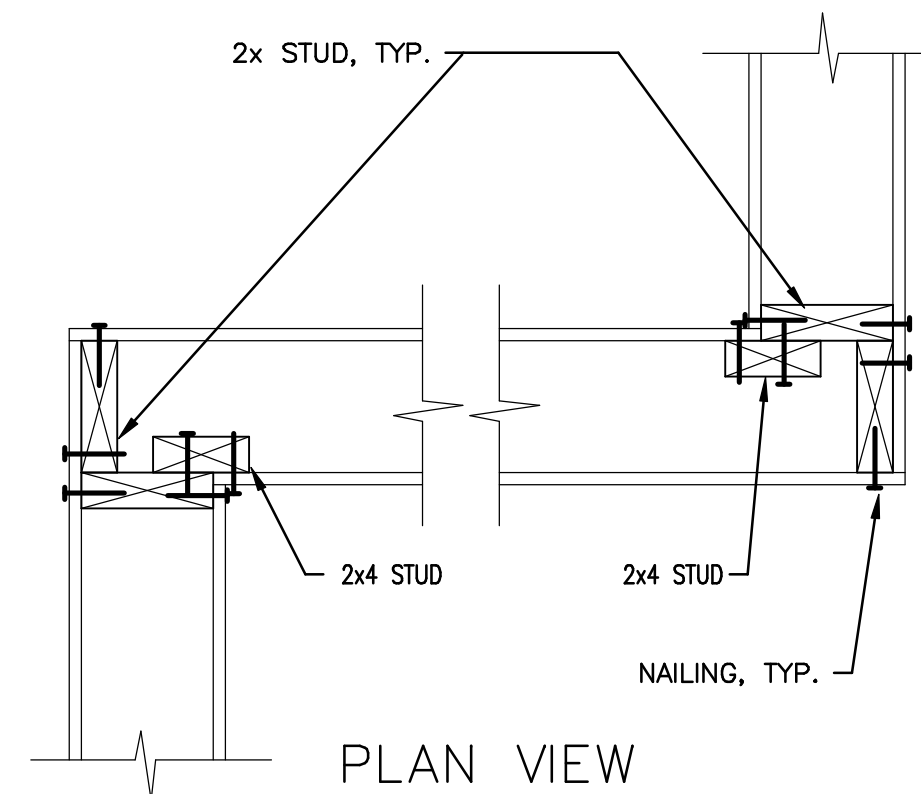
NOTE: TRUSS BLOCKING MAY BE SUBSTITUTED FOR SHEAR PANELS W/ (2)1TP4 @ 12" O.C.



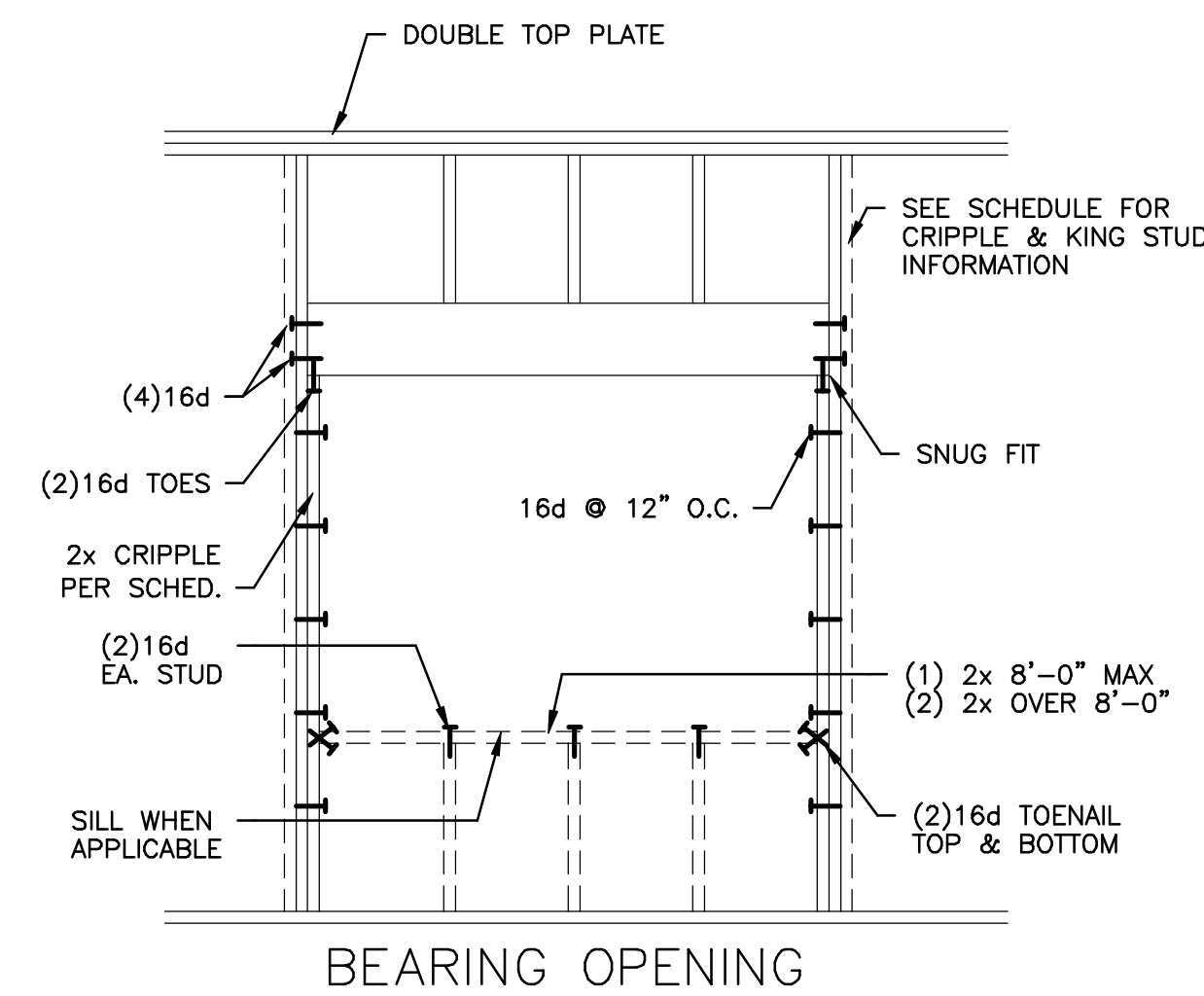
CC POST / PAD CONNECTION
3/4"=1'-0"



Z1 WINDOW STRAP DETAIL
3/4"=1'-0"

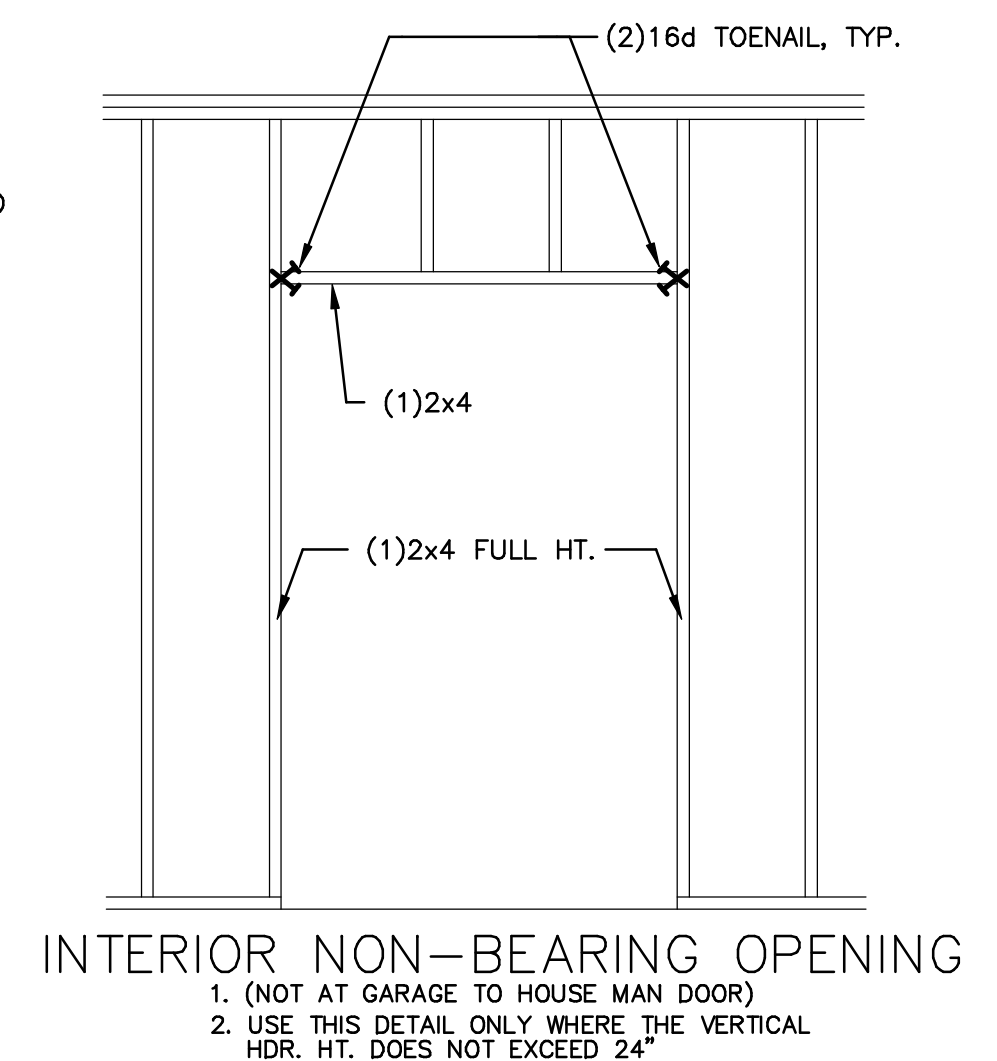


XX CORNER DETAIL



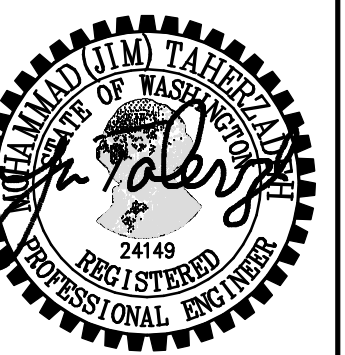
WALL OPENING FRAMING SCHEDULE (UNO ON PLAN)				
WIDTH OF OPENING	CRIPPLES	KINGS	COMMENTS	SILL
0 - 4'-0" MAX.	1	1	(4)16d EA. KING STUD TO HDR.	
4'-1" - 5'-6" MAX.	2	1	(4)16d EA. KING STUD TO HDR.	
5'-7" - 8'-0" MAX.	2	2	(4)16d EA. KING STUD TO HDR. & (1)1TP4 HDR TO EA. KING STUD	
8'-1" & OVER	SEE PLANS	SEE PLANS	SEE PLANS	

ZZ WALL OPENING DETAIL



Z2 INTERIOR NON-BEARING OPENING
1. (NOT AT GARAGE TO HOUSE MAIN DOOR)
2. USE THIS DETAIL ONLY WHERE THE VERTICAL HDR. HT. DOES NOT EXCEED 24"

NOTES:
1. ALL HEADERS PER PLAN
2. PROVIDE (2)2x6 HDR. @ BEARING OPENINGS & BELOW STRUCTURAL GIRDER END TRUSSES
3. SEE PLANS FOR INFORMATION NOT NOTES



Project
FILE NUMBER
DRAWN BY
Date
11.10.2020

GENERAL STRUCTURAL NOTES

(The following applies unless shown otherwise on the plans.)

- ALL MATERIALS AND WORKMANSHIP DESIGN, AND CONSTRUCTION SHALL CONFORM TO THE REQUIREMENTS OF THE DRAWING SPECIFICATIONS, THE INTERNATIONAL BUILDING CODE, (2015 EDITION).
- DESIGN CRITERIA

ROOF LIVE LOAD.....	25 PSF
FLOOR LIVE LOAD (RESIDENTIAL)	40 PSF
FLOOR LIVE LOAD (DECK)	60 PSF
STAIR & CORRIDOR LIVE LOAD	100 PSF
MECHANICAL UNITS	WEIGHTS FURNISHED BY MFR.
WIND	110 MPH, EXPOSURE "B" Kzt = 1.6
EARTHQUAKE	S _c =1.55 ; S =.55 (CLASS "D")
ALLOWABLE SOIL PRESSURE SEE PLANS FOR ADD. LOADING CRITERIA.	2000 PSF (NATURAL SOILS OR COMPACTED) PER SOILS REPORT

- STRUCTURAL DRAWINGS SHALL BE USED IN CONJUNCTION WITH ARCHITECTURAL DRAWINGS FOR BIDDING CONSTRUCTION. CONTRACTOR SHALL VERIFY DIMENSIONS AND CONDITIONS FOR COMPATIBILITY AND SHALL NOTIFY THE ARCHITECT AND STRUCTURAL ENGINEER, OF ANY DISCREPANCIES PRIOR TO CONSTRUCTION SO HE MAY MAKE PROPER REVISIONS TO THE WORK.
- CONTRACTOR SHALL VERIFY ALL EXISTING DIMENSIONS, MEMBER SIZES, AND CONDITIONS PRIOR TO COMMENCING ANY WORK. ALL DIMENSIONS OF EXISTING CONSTRUCTION SHOWN ON THE DRAWINGS ARE INTENDED AS GUIDELINES ONLY AND MUST BE VERIFIED.
- CONTRACTOR SHALL PROVIDE TEMPORARY BRACING AND SHORING FOR THE STRUCTURE AND STRUCTURAL COMPONENTS UNTIL ALL FINAL CONNECTIONS HAVE BEEN COMPLETED IN ACCORDANCE WITH THE PLANS.

- CONTRACTOR SHALL BE RESPONSIBLE FOR ALL REQUIRED SAFETY PRECAUTIONS AND THE METHODS, TECHNIQUES, SEQUENCES AND PROCEDURES REQUIRED TO PERFORM HIS WORK.
- CONTRACTOR-INITIATED CHANGES SHALL BE SUBMITTED IN WRITING TO THE ARCHITECT AND THE STRUCTURAL ENGINEER FOR APPROVAL PRIOR TO FABRICATION OR CONSTRUCTION. CHANGES SHOWN ON SHOP DRAWINGS ONLY WILL NOT SATISFY THIS REQUIREMENT.
- DRAWINGS INDICATE GENERAL AND TYPICAL DETAILS OF CONSTRUCTION. WHERE CONDITIONS ARE NOT SPECIFICALLY INDICATED BUT ARE OF SIMILAR CHARACTER TO DETAILS SHOWN, SIMILAR DETAILS OF CONSTRUCTION SHALL BE USED, SUBJECT TO REVIEW AND APPROVAL BY THE ARCHITECT AND STRUCTURAL ENGINEER.

- ALL STRUCTURAL SYSTEMS WHICH ARE TO BE COMPOSED OF COMPONENTS TO BE FIELD ERRECTED SHALL BE SUPERVISED BY THE SUPPLIER DURING MANUFACTURING, DELIVERY, HANDLING, STORAGE AND ERECTION IN ACCORDANCE WITH INSTRUCTIONS PREPARED BY THE SUPPLIER.
- SHOP DRAWINGS FOR STRUCTURAL STEEL, GLUED LAMINATED MEMBERS, OPEN WEB WOOD TRUSSES, AND PLYWOOD WEB JOISTS SHALL BE SUBMITTED TO THE ARCHITECT AND STRUCTURAL ENGINEER FOR REVIEW TWO WEEKS PRIOR TO FABRICATION OF THESE ITEMS.
- SHOP DRAWINGS REVIEW: DIMENSIONS AND QUANTITIES ARE NOT REVIEWED BY THE ENGINEER OF RECORD, AND THEREFORE MUST BE VERIFIED BY THE CONTRACTOR. CONTRACTOR SHALL REVIEW AND STAMP DRAWINGS PRIOR TO REVIEW BY ENGINEER OF RECORD. SUBMISSIONS SHALL INCLUDE A REPRODUCIBLE AND ONE COPY; REPRODUCIBLE WILL BE MARKED AND RETURNED.

SHOP DRAWINGS SUBMITTALS PROCESSED BY THE ENGINEER ARE NOT CHANGE ORDERS. THE PURPOSE OF SHOP DRAWING SUBMITTALS BY THE CONTRACTOR IS TO DEMONSTRATE TO THE ENGINEER THAT THE CONTRACTOR UNDERSTANDS THE DESIGN CONCEPT, THAT HE DEMONSTRATES HIS UNDERSTANDING BY INDICATING WHICH MATERIAL HE INTENDS TO FURNISH AND INSTALL AND BY DETAILING THE FABRICATION AND INSTALLATION METHODS HE INTENDS TO USE. IF DEVIATIONS, DISCREPANCIES, OR CONFLICTS BETWEEN SHOP DRAWING SUBMITTALS AND THE CONTRACT DOCUMENTS ARE DISCOVERED EITHER PRIOR TO OR AFTER SHOP DRAWING SUBMITTALS ARE PROCESSED BY THE ENGINEER, THE DESIGN DRAWINGS AND SPECIFICATIONS SHALL CONTROL AND SHALL BE FOLLOWED.

SHOP DRAWINGS OF DESIGN BUILD COMPONENTS INCLUDING STAIRS, AND EXTERIOR CLADDING SHALL INCLUDE THE DESIGNING PROFESSIONAL ENGINEER'S STAMP, STATE OF WASHINGTON, AND SHALL BE APPROVED BY THE COMPONENT DESIGNER PRIOR TO CURSORY REVIEW BY THE ENGINEER OF RECORD FOR LOADS IMPOSED ON THE BASIC STRUCTURE. THE COMPONENT DESIGNER IS RESPONSIBLE FOR CODE CONFORMANCE AN ALL NECESSARY CONNECTIONS NOT SPECIFICALLY CALLED OUT ON ARCHITECTURAL OR STRUCTURAL DRAWINGS. SHOP DRAWINGS SHALL INDICATE MAGNITUDE AND DIRECTION OF ALL LOADS IMPOSED ON BASIC STRUCTURE. DESIGN CALCULATIONS SHALL BE MADE AVAILABLE UPON REQUEST.

GEOTECHNICAL

- FOUNDATION NOTES: SUBGRADE PREPARATION INCLUDING DRAINAGE, EXCAVATION, COMPACTION, AND FILLING REQUIREMENTS, SHALL CONFORM STRICTLY WITH RECOMMENDATIONS GIVEN IN THE SOILS REPORT OR AS DIRECTED BY THE SOILS ENGINEER. FOOTINGS SHALL BEAR ON SOLID UNDISTURBED EARTH (CONTROLLED, COMPACTED STRUCTURAL FILL OR BOTH) AT LEAST 18" BELOW LOWEST ADJACENT FINISHED GRADE. FOOTING DEPTHS/ELEVATIONS SHOWN ON PLANS (OR IN DETAILS) ARE MINIMUM AND FOR GUIDANCE ONLY; THE ACTUAL ELEVATIONS OF FOOTINGS MUST BE ESTABLISHED BY THE CONTRACTOR IN THE FIELD

FOLLOW RECOMMENDATIONS OF THE SOIL REPORT #ES7526 BY EARTH SOLUTIONS LLC DATED NOVEMBER 2, 2020

CONCRETE

- CONCRETE SHALL ATTAIN A 28 DAY STRENGTH OF f_c = 2500 PSI AND MIX SHALL CONTAIN NOT LESS THAN 5 SACKS OF CEMENT PER CUBIC YARD AND NO MORE THAN 6 GALLONS OF WATER PER SACK OF CEMENT.

ALL CONCRETE EXPOSED TO WEATHER SHALL BE AIR-ENTRAINED WITH AN AIR -ENTRAINING AGENT CONFORMING TO I.B.C. THE AMOUNT SHALL BE 4% + % BY VOLUME.
- REINFORCING STEEL SHALL CONFORM TO ASTM A615, (INCLUDING SUPPLEMENT S1) GRADE 40, f_y = 40,000 PSI. EXCEPTION: COLUMN TIES, BEAM STIRRUPS, BARS TO BE FIELD BENT, BARS TO BE WELDED AND ANY OTHER BARS SPECIFICALLY SO NOTED ON THE DRAWINGS SHALL BE GRADE 40 f_y = 40,000 PSI REINFORCING COMPLYING WITH ASTM A706 (S1) MAY BE WELDED ONLY IF MATERIAL PROPERTY REPORTS INDICATING CONFORMANCE WITH WELDING PROCEDURES SPECIFIED IN A.W.S. D1.4 ARE SUBMITTED. NO REINFORCING SHALL BE WETSET UNLESS SPECIFICALLY SO DETAILED.

WELDED WIRE MESH SHALL CONFORM TO ASTM A-185.

- REINFORCING STEEL SHALL BE DETAILED (INCLUDING HOOKS AND BENDS) IN ACCORDANCE WITH ACI 315-04 AND 318-05. LAP ALL CONTINUOUS REINFORCEMENT 58 BAR DIAMETERS (2'-6" MIN.). PROVIDE CORNER BARS AT ALL WALL INTERSECTIONS. LAP CORNER BARS 30 BAR DIAMETERS (2'-6" MIN.). LAP ADJACENT MATS OF WELDED WIRE FABRIC TWO SQUARES (MIN. OF 12") AT SIDES AND ENDS.

NO BARS PARTIALLY EMBEDDED IN HARDENED CONCRETE SHALL BE FIELD BENT UNLESS SPECIFICALLY SO DETAILED OR APPROVED BY THE STRUCTURAL ENGINEER.

- CONCRETE PROTECTION (COVER) FOR REINFORCING STEEL SHALL BE AS FOLLOWS:

FOOTINGS AND OTHER UNFORMED SURFACES, EARTH FACE.....	3"
FORMED SURFACES EXPOSED TO EARTH (i.e. WALLS BELOW GROUND) OR WEATHER (#6 BARS OR LARGER).....	2"
(#5 BARS OR SMALLER).....	1 1/2"
COLUMN TIES OR SPIRAL AND BEAM STIRRUPS.....	1 1/2"
SLABS AND WALLS (INTERIOR FACE).....	3/4"

CAST-IN-PLACE CONCRETE: SEE ARCHITECTURAL DRAWINGS FOR EXACT LOCATIONS AND DIMENSIONS OF DOOR AND WINDOW OPENINGS IN ALL CONCRETE WALLS. SEE MECHANICAL DRAWINGS FOR SIZE AND LOCATION OF MISCELLANEOUS MECHANICAL OPENINGS THROUGH CONCRETE WALLS. SEE ARCHITECTURAL DRAWINGS FOR ALL GROOVES, NOTCHES, CHAMFERS, FEATURE STRIPS, COLOR, TEXTURE, AND OTHER FINISH DETAILS AT ALL EXPOSED CONCRETE SURFACES, BOTH CAST-IN-PLACE AND PRECAST.

- NON-SHRINK GROUT SHALL BE FURNISHED BY AN APPROVED MANUFACTURER AND SHALL BE MIXED AND PLACED IN STRICT ACCORDANCE WITH THE MANUFACTURE'S PUBLISHED RECOMMENDATIONS.

STEEL

- STRUCTURAL STEEL DESIGN, FABRICATION, AND ERECTION SHALL BE BASED ON ON THE A.I.S.C. "SPECIFICATION FOR THE DESIGN, FABRICATION, AND ERECTION OF STRUCTURAL STEEL BUILDINGS", LATEST EDITION, PLUS ALL REFERENCES CODES.
- STRUCTURAL STEEL INCLUDING PLATES, AND ROLLED SHAPES, SHALL CONFORM TO ASTM A36, F_y = 36 KSI STEEL PIPE SHALL CONFORM TO ASTM A-53, TYPE E, OR S, GRADE B, F_y = 35 KSI STRUCTURAL TUBING SHALL CONFORM TO ASTM A500, F_y = 46 KSI BOLTS SHALL CONFORM TO ASTM A307 EXPANSION SHALL BE "PARABOLT" OR APPROVED EQUAL INSTALLED IN STRICT ACCORDANCE WITH THE MAUFACTURE'S PUBLISHED RECOMMENDATION. EXPANSION BOLTS SHALL ALSO BE SIMPSON STRONG BOLT (ICC-ESR1) INSTALLED PER ICC-ESR REQUIREMENTS
- ALL WELDING SHALL BE IN CONFORMANCE WITH A.I.S.C. AND A.W.S. STANDARDS AND SHALL BE PERFORMED BY W.A.B.O. CERTIFIED WELDERS USING E70XX ELETTRODES. ONLY PREQUALIFIED WELDS (AS DEFINED BY A.W.S.) SHALL BE USED. WELDING OF GRADE 40 REINFORCING BARS (IF REQUIRED) SHALL BE PERFORMED USING E70XX ELETTRODES & PER ASTM A706. WELDING WITHIN 4" OF COLD BENDS IN REINFORCING STEEL IS NOT PERMITTED. SEE REINFORCING NOTE FOR MATERIAL REQUIREMENTS OF WELDED BARS.

WOOD

- FRAMING LUMBER SHALL BE KILN DRIED OR MC-15, AND GRADED AND MARKED IN CONFORMANCE WITH W.C.L.B. STANDARD GRADING RULES FOR WEST COAST LUMBER NO. 16, LATEST EDITION. FURNISH TO THE FOLLOWING MINIMUM STANDARDS:

JOISTS (2x MEMBERS)	HEM FIRS NO.2
BEAMS AND STRINGERS	DOUGLAS FIR NO.2
POSTS AND TIMBERS	DOUGLAS FIR NO.1
STUDS, PLATES AND MISC. LIGHT FRAMING	DOUGLAS FIR NO.1 OR HEM FIR STAND. GRADE.
TOP AND BOTTOM PLATES AT BEARING WALLS	DOUGLAS FIR NO.1 OR HEM FIR CONSTRUCTION GRADE.
BOLTED STUDS, LEDGERS AND PLATES	DOUGLAS FIR STANDARD GRADE.
2x6 STUDS AND PLATES	DOUGLAS FIR OR HEM FIR NO.3 (STUD GRADE).

- GLUE-LAMINATED MEMBERS SHALL BEAR AN AITC IDENTIFICATION MARK AND SHALL BE ACCOMPANIED BY AN AITC CERTIFICATION OF CONFORMANCE. ALL SIMPLE SPAN BEAMS SHALL BE DOUGLAS FIR COMBINATION 24F-V4, F_b = 2400 PSI, F_v = 240 PSI. ALL CONTINUOUS & CANTILEVER BEAMS SHALL BE DOUGLAS FIR COMBINATION 24F-V8, F_b = 2400 PSI, F_v = 240 PSI.

- LAMINATED VENEER LUMBER SHALL BE FABRICATED IN CONFORMANCE WITH REPORT NO. NER-126. EACH MEMBER SHALL BEAR AN IDENTIFICATION MARK. ALL BEAMS SHALL BE WESTERN SPECIES, GRADE 1.8E, F_b = 2600 PSI, F_v = 285 PSI.

- PARALLEL STRAND LUMBER SHALL BE FABRICATED IN CONFORMANCE WITH REPORT NO. NER-292. EACH MEMBER SHALL BEAR AN IDENTIFICATION MARK. ALL BEAMS SHALL BE DOUGLAS FIR, GRADE 2.0E, F_b = 2900 PSI, F_v = 290 PSI

- PLYWOOD WEB WOOD JOISTS (TJI'S) SHALL BE DESIGNED BY THE MANUFACTURER FOR THE SPANS AND CONDITIONS SHOWN ON THE PLANS AND SHALL BE FURNISHED AND INSTALLED IN CONFORMANCE WITH THE MANUFACTURER'S PUBLISHED SPECIFICATIONS. ALL NECESSARY BRACING, BRIDGING, BLOCKING, PRE-NOTCHED PLATES ETC., SHALL BE THE DETAILED AND FURNISHED BY THE MANUFACTURER.

- SUBMIT SHOP DRAWINGS AND DESIGN CALCULATIONS (COMPLETE WITH STRESS DIAGRAMS) TO THE ARCHITECT AND THE STRUCTURAL ENGINEER FOR REVIEW TWO WEEKS PRIOR TO FABRICATION.

DESIGN SUBMITTALS SHALL BEAR THE STAMP OF A REGISTERED PROFESSIONAL ENGINEER, STATE OF WASHINGTON.

PERMANENT AND TEMPORARY BRIDGING AND BRACING SHALL BE INSTALLED IN CONFORMANCE WITH MANUFACTURER'S SPECIFICATIONS.

- PLYWOOD SHEATHING SHALL BE GRADE C-D EXTERIOR GLUE OR STRUCTURAL II, EXTERIOR GLUE ORIENTED STRAND BOARD OF EQUIVALENT THICKNESS, EXPOSURE 1 RATING AND PANEL INDEX MAY BE USED IN LIEU OF PLYWOOD. SEE PLANS FOR THICKNESS, PANEL IDENTIFICATION INDEX AND NAILING REQUIREMENTS. STRUCTURAL WOOD SHEATHING PANELS SHALL HAVE APA GRADE TRADEMARK OF THE AMERICAN PLYWOOD ASSOCIATION

- ALL WOOD PLATES AND BLOCKING IN DIRECT CONTACT WITH CONCRETE OR MASONARY SHALL BE PRESSURE-TREATED WITH AN A.W.P.A. APPROVED PRESERVATIVE. PROVIDE 2 LAYERS OF ASPHALT IMPREGNATED BUILDING PAPER BETWEEN UNTREATED LEDGERS, BLOCKING, ETC., AND CONCRETE OR MASONRY.

- TIMBER CONNECTORS CALLED OUT BY LETTERS AND NUMBERS SHALL BE BY SIMPSON COMPANY, AS SPECIFIED IN THEIR CATALOG. EQUIVALENT DEVICES BY OTHER MANUFACTURERS MAY BE SUBSTITUTED, PROVIDED THEY HAVE ICC APPROVAL FOR EQUAL OR GREATER LOAD CAPACITIES. PROVIDE NUMBER AND SIZE OF FASTENERS AS SPECIFIED BY MANUFACTURER. CONNECTORS SHALL BE INSTALLED IN ACCORDANCE WITH THE MANUFACTURER'S RECOMMENDATIONS. WHERE CONNECTORS STRAPS CONNECT TWO MEMBERS, PLACE ON HALF OF THE NAILS OR BOLTS IN EACH MEMBER. ALL BOLTS IN WOOD MEMBERS SHALL CONFORM TO ASTM A307. PROVIDE WASHERS UNDER THE HEADS AND NUTS OF ALL BOLTS AND LAG SCREWS BEARING ON WOOD UNLESS NOTED OTHERWISE. ALL NAILS SHALL BE COMMON. ALL SHIMS SHALL BE SEASONED AND DRIED AND THE SAME GRADE (MINIMUM) AS MEMBERS CONNECTED. ALL JOISTS SHALL BE CONNECTED TO FLUSH BEAMS WITH "U" SERIES HANGERS. ALL DOUBLE JOIST BEAMS SHALL BE CONNECTED TO FLUSH BEAMS WITH "U" SERIES HANGERS. ALL TRIPLE JOIST BEAMS SHALL BE CONNECTED TO FLUSH BEAMS WITH "U" SERIES HANGERS. TJI JOIST HANGERS PER MANUFACTURER / TJI SHOP DRAWINGS (U.N.O.)

- PROTECTION OF CONNECTORS IN CONTACT WITH PRESSURE TREATED WOOD ALL BOLTS, NAILS, JOIST HANGERS AND ANY OTHER CONNECTORS SHALL BE HOT DIPPED GALVANIZED FASTENERS RECOMMENDED TO CONFORM WITH ASTM STANDARD A-153 AND HOT DIPPED GALVANIZED CONNECTORS SHOULD CONFORM TO ASTM A165, CLASS G-1B3. STAINLESS STEEL FASTENERS AND CONNECTORS SHOULD BE TYPE 304 OF 316 SIMPSON PRODUCT FINISHES CORRESPONDING TO THESE REQUIREMENTS ARE ZMAX 9158 (HOT DIPPED GALVANIZED) AND SST3000 (STAINLESS STEEL)

- ALL WOOD FRAMING DETAILS - THE FOLLOWING APPLY UNLESS OTHERWISE SHOWN ON THE PLANS.

- MINIMUM NAILING REQUIREMENTS: UNLESS OTHERWISE NOTED, MINIMUM NAILING SHALL BE IN ACCORDANCE WITH TABLE 2304.10.1 OF THE INTERNATIONAL BUILDING CODE.

- NOTE REMOVED

- PROVIDE DOUBLE JOIST UNDER ALL PARALLEL PARTITIONS THAT EXTEND MORE THAN HALF THE JOIST LENGTH AND DOUBLE JOIST HEADERS AND DOUBLE JOISTS EACH SIDE OF ALL OPENINGS IN FLOORS AND ROOFS UNLESS DETAILED OTHERWISE. COORDINATE SIZE AND LOCATION OF ALL OPENINGS WITH ARCHITECTURAL AND MECHANICAL DRAWINGS.

- PROVIDE TWO 2x10 HEADERS OVER AND DOUBLE STUDS EACH SIDE OF ALL OPENINGS IN STUD BEARING WALLS NOT DETAILED OTHERWISE.

- PROVIDE SOLID BLOCKING FOR WOOD COLUMNS AND MULTIPLE STUD POSTS THROUGH FLOORS TO SUPPORTS BELOW.

- PROVIDE CONTINUOUS SOLID BLOCKING AT MID OF ALL STUDS OVER 10' IN HEIGHT.

- TOENAIL JOISTS TO SUPPORTS WITH 2-16d NAILS. ATTACH ALL BEAMS AT THE ROOF EXCEEDING 8'-0" IN LENGTH TO SUPPORTS WITH ST22 STRAP EACH END.

- ATTACH TIMBER JOISTS TO FLUSH HEADERS AND BEAMS WITH "U" SERIES METAL JOIST HANGERS TO SUIT THE JOIST SIZE.

- WALL FRAMING ALL STUD WALL SHOWN AND NOT OTHERWISE NOTED SHALL BE 2x4 STUDS @ 16" o.c. AT INTERIOR WALLS AND 2x6 STUDS @ 16" o.c. AT EXTERIOR WALLS

- NOTATIONS ON DRAWINGS RELATING TO FRAMING CLIPS, JOIST HANGERS, AND OTHER CONNECTING DEVICES REFER TO CATALOG NUMBERS OF CONNECTORS MANUFACTURED BY SIMPSON CONNECTORS, A GIBRALTAR COMPANY, LIVERMORE, CALIFORNIA. EQUIVALENT DEVICES BY OTHER MANUFACTURES MAY BE SUBSTITUTED, PROVIDED THEY HAVE ICBO APPROVAL FOR EQUAL LOAD CAPACITIES.

- INDIVIDUAL MEMBERS OF BUILT-UP POSTS AND BEAMS SHALL EACH BE ATTACHED WITH 16d NAILS @ 6" o.c. STAGGERED.

- ALL WOOD STUDS WALLS SHALL HAVE LOWER WOOD PLATE ATTACHED TO WOOD FRAMING BELOW WITH 16d NAILS @ 6" o.c. STAGGERED UNLESS SHOWN OTHERWISE.

- ALL WOOD FRAMING DETAILS NOT SHOWN OTHERWISE SHALL BE CONSTRUCTED TO MINIMUM STANDARDS OF THE INTERNATIONAL BUILDING CODE AND AS NOTED IN THE NOTE 30-A ABOVE.

- PLYWOOD ROOF SHEATHING AND FLOOR SHEATHING UNLESS OTHERWISE NOTED ON PLANS SHALL BE LAID UP WITH FACE GRAIN PERPENDICULAR TO SUPPORTS AND NAILED WITH 8d nails @ 6" o.c. TO FRAMED PANEL EDGES AND OVER STUD WALLS SHOWN ON PLANS AND @ 12" o.c. (10" o.c. AT FLOORS TO INTERMEDIATE SUPPORTS. PROVIDE APPROVED EDGE CLIPS @ 24" o.c. AT UNBLOCKED ROOF SHEATHING EDGES. PROVIDE SOLD BLOCKING AT LINES OF SUPPORT AT FLOORS. TOENAIL BLOCKING TO SUPPORTS WITH 16d NAILS @ 12" o.c. UNLESS OTHERWISE NOTED IN THE SHEARWALL SCHEDULE.

- PROVIDE 2- 2x10 HEADERS OVER AND DOUBLE STUDS EACH SIDE OF ALL OPENINGS IN STUD WALLS NOT DETAILED OTHERWISE. ATTACH WITH AC OR PC POST CAPS OR EQUAL.

- PLYWOOD WALL SHEATHING SHALL HAVE SOLID BLOCKING AT ALL EDGES.

- ALL WOOD STUD WALLS SHALL HAVE LOWER WOOD PLATE ATTACHED TO WOOD FRAMING BELOW WITH 16d NAILS AT 6" o.c. STAGGERED OR BOLTED TO CONCRETE WITH 5/8" DIAMETER ANCHOR BOLTS @ 4'-0" o.c. UNLESS SHOWN OTHERWISE.

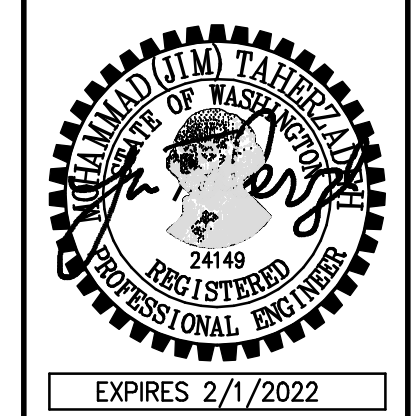
- PLYWOOD NAILING: (USE UNLESS GREATER NAILING IS DETAILED OR SPECIFIED)

8d @ 6" o.c. AT SHEET EDGES
8d @ 12" o.c. AT INTERMEDIATE BEARING POINTS

- PROVIDE ABU POST BASE @ ISOLATED POSTS TO CONCRETE CONNECTION
- PROVIDE (2)A35 CLIPS @ TOP & BOTTOM OF ALL POST TO OTHER FRAMING MEMBERS
- PROVIDE AC OR ACE POST CAP @ ISOLATED POSTS TO BEAM CONNECTIONS
- PROVIDE MIN. (2)A35 CLIPS @ POST TO BEAM CONNECTION (U.N.O.)

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MERLINO RESIDENCE
STRUCTURAL NOTES



Project
FILE NUMBER
DRAWN BY
Date
11.10.2020

Sheet
S3



REVISED

1/4"=1'-0"

SCALE

11.10.2020

DATE

MERCER ISLAND

COMPUTER FILE NAME

N1

SHEET NUMBER

BUILDING LEAKAGE / TESTING NOTE:

402.4.1.2 Building Air Leakage Testing: Building envelope air leakage control shall be considered acceptable when tested to have an air leakage maximum of 3 air changes per hour when tested with a blower door at a press of 50 Pascals (0.2 inch w.g.). Testing shall occur at any time after rough in and after installation of penetrations of the building envelope, including penetrations for utilities, plumbing, electrical, ventilation, and combustion appliances and sealing thereof. When required by the building official, testing shall be done by an approved third party. A written report of the results of the test shall be signed by the party conducting the test and provided to the code official

During testing:

1. Exterior windows and doors, fireplace and stove doors shall be closed, but not sealed.
2. Dampers shall be closed, but not sealed; including exhaust, intake, makeup air, back draft, and flue dampers;
3. Interior doors connecting conditioned spaces shall be open; access hatches to conditioned crawl spaces and conditioned attics shall be open; doors connecting to unconditioned spaces shall be closed but not sealed;
4. Exterior openings for continuous operation ventilation systems and heat recovery ventilators shall be closed and sealed;
5. Heating and cooling system(s) shall be turned off;
6. HVAC ducts supply and return registers shall not

Also reference WSEC Chapter 4 for general building design requirements using the prescriptive path

ENERGY NOTES:

- DUCT TESTING REQUIRED PER WSEC R403.3.3

- BUILDING AIR LEAKAGE TESTING REQUIRED PER WSEC R402.4.1.2 (SEE NOTE THIS PAGE)

- HVAC CONTROLS WITH PROGRAMMABLE SCHEDULE PER WSEC R403.1.1

- A MINIMUM OF 75% OF PERMANENTLY INSTALLED LIGHTING FIXTURES SHALL BE HIGH-EFFICACY PER R404.1

- INSULATION MARKERS SHALL BE PLACED EVERY 300 S.F. IN THE ATTIC AND FACE TOWARD THE ATTIC ACCESS

PER WSEC R401.3.

A CERTIFICATE IS TO BE POSTED IN SPACE THE SPACE WHERE THE FURNACE IS LOCATED, UTILITY ROOM OR ON AN APPROVED LOCATION INSIDE THE BUILDING. WHEN LOCATED ON THE ELEC. PANEL, THE CERTIFICATE SHALL NOT COVER OR OBSTRUCT THE VISIBILITY OF THE

1. R-VALUES OF ALL INSULATION INSTALLED (ATTIC, FLOOR, WALLS, DUCT WORK OUTSIDE OF CONDITIONED SPACE, ETC.)
2. U-FACTORS AND SOLAR HEAT GAIN COEFFICIENT (SHGC) OF FENESTRATION
3. TYPE OF HEATING
4. TYPE OF COOLING (IF ANY)
5. TYPE OF WATER HEATING EQUIPMENT.
6. DUCT LEAKAGE RATES - INCLUDING TEST CONDITIONS & AIR LEAKAGE RESULTS IF A BLOWER DOOR TEST WAS CONDUCTED.

A COPY OF THE WSEC 2015 CERTIFICATE CAN BE FOUND AT: <http://www.energy.wsu.edu/BuildingEfficiency/EnergyCode.aspx>

ALL HEADER MEMBERS ARE TO BE INSULATED WITH R-10 RIGID INSULATION UNLESS THE HEADER MEMBER IS 5-1/2" IN WIDTH

ALL STUD WALL INTERSECTIONS ARE TO BE FRAMED PER DETAIL XX/52 AND ARE TO BE FULLY INSULATED WITH NO VOIDS

MECHANICAL SYSTEMS

Electrical

60. Electrical Connections. Equipment electrical connection shall be regulated in accordance with the adopted state electrical code.

Exceptions:

1. Means of disconnect. Independent means of disconnect for the electrical supply to each piece of equipment shall be provided in sight of the equipment served when the supply voltage exceeds 50 volts.
2. Service Receptacle. A 120-volt service receptacle shall be located within 25 feet of, and on the same level as, the equipment.
3. Illumination. Permanent switch controlled lighting shall be installed for maintenance of equipment. The lighting shall provide sufficient illumination to safely approach the equipment and perform maintenance. Control of the lighting shall be provided at the access entrance.
- Equipment
61. Mechanical Equipment.. Equipment shall be approved by the building official for safe use or comply with applicable nationally recognized standards as evidenced by the listing and label of an approved agency. Listed appliances. The installer shall leave the manufacturer's installation and operating instructions attached to the appliance. Clearances of listed appliances from combustible materials shall be as specified in the listing or on the rating plate.

62. Water Heaters. Fuel burning water heaters shall not be installed in bathrooms or in a closet with access only through a bedroom or bathroom.

Exceptions:

1. Water heaters installed having direct vent systems.
2. Water heaters installed in a closet that has a weather-stripped solid door with an approved door closing device, and designed exclusively for the water heater and where all air for combustion and ventilation is supplied from the outdoors.
3. Water heaters of the automatic storage type installed as a replacement in a bathroom, when specifically approved, properly vented and supplied with adequate combustion air.

Heating system

64. Listing Required. All furnaces shall be listed and labeled by an approved agency and installed to listed specifications.

Location

65. Installation Per Listing. Equipment shall be located as required in Section M1307 & M1308, IRC, specific requirements elsewhere in the IRC and the conditions of the equipment's approval.

66. Prohibited Location. Fuel-burning equipment shall not be installed in a closet, bathroom or a room readily usable as a bedroom, or in a room, compartment or alcove opening directly into any of these, except direct vent equipment, electric heat furnaces and other conditions noted in

In areas subject to flooding, equipment which would be damaged or create hazardous conditions if subjected to inundation shall not be installed at or below grade unless suitably protected by elevation or other approved means.

67. Liquefied petroleum gas burning appliances shall not be installed in a pit, an underfloor space, below grade or similar location where vapors or fuel might unsafely collect unless an approved method for the safe collection, removal and containment or disposal of the vapors or fuel is provided.

68. Clearances. Furnaces within compartments or alcoves shall have a minimum working space clearance of 3 inches along the sides, back and top with a total width of the enclosing space being at least 12 inches wider than the furnace. Section M1305, IRC.

69. Access and Service Space. Equipment requiring routine inspection or maintenance shall be provided with sufficient access to allow inspection, maintenance and replacement without removing permanent construction or other equipment or disabling the function of required fire-resistant construction. Section M1305, IRC. Furnace installations in attics or crawl spaces shall comply with Section M1305.1.3, IRC

70. Support. Appliances designed to be in a fixed position shall be securely fastened in place. Supports for appliances shall be designed and constructed to sustain vertical and horizontal loads within the stress limitations in the building code. Section M1307.2, IRC.

71. Mechanical System in Garage.

A. Protection from damage. Equipment shall not be installed in a location where it is subject to mechanical damage unless protected by approved, substantial barriers. Section M1307.3.1.

B. Elevation of ignition source. Heating or cooling equipment located in a garage and which generates a glow, spark, or flame capable of igniting flammable vapors shall be installed with the pilots and burners or heating elements and switches at least 18 inches above the floor level. Section M1307.3

72. Fire dampers. Fire dampers need not be installed in air ducts passing through the wall, floor, or ceiling separating a residence (Group R, Division 3 Occupancy) from a garage (Group U, Division 1 Occupancy), provided such ducts within the garage are constructed of steel having a thickness not less than 0.019 inch (No. 26 galvanized sheet gauge) and have no openings into the garage.

Venting and Combustion Air

73. All fuel burning equipment shall be provided with combustion air. Appliances located within the building envelope shall obtain combustion air from outdoors. Heating equipment located within the Building Envelope shall be thermally isolated from the heated area. Chapter 17 IRC

74. Every appliance designed to be vented shall be connected to a venting system complying with Chapter 18, IRC.

75. Every factory-built chimney, Type L vent, Type B gas vent, or Type BW gas vent shall be installed in accordance with the terms of its listing, manufacturer's instructions, and the applicable provisions of Chapter 18, IRC.

76. Vent connectors shall be installed within the space or area in which the appliance is located and shall be connected to a chimney or vent in

and Table M1306.2 IRC. and Figure M1306.1 IRC

77. Type B or BW. Type B or BW gas vent shall terminate per M1804 IRC such a manner as to maintain the clearance to combustibles per Section M1803.3.4 Duct work

78. Duct systems shall be of metal as set forth in Table M1601.1.1(2) IRC factory made air ducts complying with Chapter 16, IRC.

Joints and seams shall be substantially airtight by means of tapes, mastics, gaskets or other means.

2015 WASHINGTON STATE ENERGY CODE,

E1. Access Hatches and Doors. Access doors from conditioned spaces to unconditioned spaces (e.g., attics and crawl spaces) shall be weather-stripped and insulated to a level equivalent to the insulation on the surrounding surfaces. Access shall be provided to all equipment which prevents damaging or compressing the insulation. A wood framed or equivalent baffle or retainer must be provided when loose fill insulation is installed. Section R402.2.4. WSEC
INSULATION: All insulation materials, including facings such as vapor barriers or breather papers, installed within floor/ceiling assemblies, roof/ceiling assemblies, walls, crawl spaces, or attics shall have a flame-spread rating not to exceed 25 and a smoke density not to exceed 450

Exceptions:

1. Foam plastic insulation shall comply with Section R316, IRC.

2. When such materials are installed in concealed spaces, the flame spread and smoke-developed limitations do not apply to the facing, provided that the facing is installed in substantial contact with the unexposed surface of the ceiling, floor, or wall finish.

3. Cellulose insulation shall comply with Section R316 IRC

E2. Insulation Clearances. Where required, insulation shall be installed with clearances according to manufacturer's specifications. Insulation shall be installed so that required ventilation is unobstructed. For blown or poured loose fill, clearances shall be maintained through installation of a permanent retainer.

E3. Roofs/Ceilings. Open blown or poured loose fill insulation may be used where the slope of the ceiling is not more than 3:12 and there is more than 30 inches from the top of the ceiling framing to the underside of the roof sheathing at the roof ridge. When eave vents are installed, baffling of the vent openings shall be provided so as to deflect the incoming air above the surface of the insulation. Baffles shall be rigid material, resistant to wind driven moisture. Section R402.2.3 WSEC Refer to Section R806 IRC for additional information.

E4. Walls. Insulation installed in exterior walls shall comply with the provisions of this section. All wall insulation shall fill the entire framed cavity. Exterior wall cavities isolated during framing shall be fully insulated to the levels of surrounding walls. All faced insulation shall be face stapled to avoid compression. Table R402.4.1.1 WSEC

E5. Floors. Floor insulation shall be installed in a permanent manner in substantial contact with the surface being insulated. Insulation supports shall be installed so spacing is no more than 24 inches on center. Foundation vents shall be placed so that the top of the vent is below the lower surface of the floor insulation. Section R402.2.7 WSEC

E6. Slabs. Perimeter insulation installed on the inside of the foundation wall shall extend downward from the top of the slab for a minimum of 24 inches. Insulation installed on the outside of the slab shall extend downward from the top to the bottom of the footing. Thermal breaks shall be placed in the slab between conditioned and unconditioned spaces. The entire area of a radiant slab shall be thermally isolated from the soil, with a minimum of R-10 insulation. The insulation shall be an approved product for its intended use. Section R402.2.9 WSEC
Radiant Slabs. The entire area of a radiant slab shall be thermally isolated from the soil with a minimum of R-10 insulation. The insulation shall be an approved product for its intended use.

E7. Below Grade Walls. Below grade exterior wall insulation (cold side of the wall) shall extend from the top of the below grade wall to the top of the footing and shall be approved for below-grade use. Above grade insulation shall be protected. Insulation used on the interior (warm side of the wall) shall extend from the top of the below-grade wall to the below-grade floor level. Section R402.2.8 WSEC
Moisture Control. Section Table R402.4.1.1 WSEC - Vapor retarders shall be installed on the warm side (in winter) of the insulation

E8. Roof/Ceiling assemblies where the ventilation space above the insulation is less than an average of 12 inches shall be provided with a vapor retarder. Faced batt insulation where used as a vapor retarder shall be face stapled. Single rafter joist vaulted ceiling cavities shall be of sufficient depth to allow a minimum one inch vented air space above the insulation. Vapor retarders are not required where the ventilation space above the insulation averages 12 inches or greater or where the insulation is installed between the roof membrane and the structural roof deck.

E9. Walls separating conditioned space shall have a vapor retarder installed. Faced batt insulation shall be face stapled.

E10. Floors separating conditioned space from unconditioned space shall have a vapor retarder installed with a one perm dry cup (4 ml.) rating or less.

E11. Ground cover of six mil (0.006" thick) black polyethylene or approved equal shall be laid over the ground within crawl spaces. The ground cover shall be overlapped 12" minimum at the joints and shall extend to the foundation wall.

Exception: The ground cover may be omitted in crawl spaces if the crawl space has a concrete slab floor with minimum thickness of 3-1/2 inches.

E12. Air Leakage Control. Seal all exterior openings

A. Exterior doors and windows shall be designed to limit air leakage into or from the building envelope, except for assemblies that are required to be of fire-resistive construction.

B. Exterior joints around windows and door frames, openings between walls and foundation, between roof and wall panels; openings at penetrations of utility services through wall, floors and roofs; and all other openings in the building envelope shall be sealed, caulked, gasketed, or weather stripped. All other openings shall be sealed, caulked, gasketed or weather-stripped to limit air leakage.

C. Site constructed doors and windows are not required to be tested, but shall be made tight fitting. Fixed lights shall be stopped with saient all around. Operating sash shall have weather-stripping working against overlapping trim, and a latch which will hold the sash closed.

D. Recessed Light Fixtures. When installed in the building envelope, recessed lighting fixtures shall meet one of the following requirements :

1. Type IC rated, manufactured with no penetrations between the inside of the recessed fixture and the ceiling cavity, and sealed or gasketed to prevent air leakage into the unconditioned space.
2. Type IC, installed inside a sealed box constructed from a min. 1/2 inch thick gypsum wall board, or constructed from a preformed polymeric vapor barrier, or other air tight assembly manufactured for this purpose.
3. Type IC rated, certified under ASTM E283 to have no more than 2.0 cfm air movement from the conditioned space to the ceiling cavity. The lighting fixture shall be tested at 75 Pascals or 1.57 lbs/ft2 pressure difference and have a label attached, showing compliance. Section R402.4.4 WSEC

E14. Duct Construction. All duct work shall be constructed in accordance with standards RS-15, RS-16, RS-17, RS-18, RS-19, or RS-20, as applicable, and the International Mechanical Code. Section R403.2 WSEC

E15. Zoning for Temperature Control. Readily accessible manual or automatic means shall be provided to partially restrict or shut off the heating and/or cooling input to each zone. Section R403.1.1WSEC

E16. Thermostat Control. Each system shall be provided with at least one adjustable thermostat for the regulation of temperature. Each shall be capable of being set by adjustment or selection of sensors as follows:

- a. Heating 55 - 75 degrees F.
- b. Cooling 75 - 85 degrees F.
- c. For heating and cooling 55-85 degrees and shall be capable of operating the system heating and cooling sequence.

E17. Pipe Insulation. All piping shall be thermally insulated in accordance with Section R403.4 WSEC

DUCT NOTE:
DUCTS ARE REQUIRED TO BE INSULATED TO A MINIMUM OF R-8, R403.3.1

MECHANICAL SYSTEM PIPING IS REQUIRED TO BE INSULATED TO A MINIMUM OF R-6 R403.4

HOT WATER PIPES ARE REQUIRED TO BE INSULATED TO A MINIMUM OF R-3, R403.5.3

MECHANICAL DUCTS ARE REQUIRED TO BE SEALED PER R403.3.2 AND TESTED IN ACCORDANCE WITH R403.3.3. TESTING TO COMPLY WITH WSU RS-33

Window, Skylight and Door Schedule

Project Information
 Merlino Residence
 Mercer Island, Wa

Contact Information
 Dan Brobst
 Brobst Design Works
 206.409.6690 dan@brobstdesignworks.com

Ref.	U-factor	Qt.	Width Feet	Height Feet	Area	UA
Exempt Swinging Door (24 sq. ft. max.)					0.0	0.00
Exempt Glazed Fenestration (15 sq. ft. max.)					0.0	0.00

Vertical Fenestration (Windows and doors)

Component Description	Ref.	U-factor	Qt.	Width Feet	Height Feet	Area	UA
Vinyl Window	1	0.28	10	6	60.0	16.80	
Vinyl Window	2	0.28	6	6	36.0	10.08	
Vinyl Sliding glass door	3	0.28	12	8	192.0	53.76	
Vinyl Window	4	0.28	10	6	60.0	16.80	
Vinyl Window	5	0.28	4	6	24.0	6.72	
Vinyl Window	6	0.28	4	1	4.0	1.12	
Vinyl Window	7	0.28	5	5	25.0	7.00	
Vinyl Window	8	0.28	2	4	8.0	2.24	
Vinyl Window	9	0.28	6	4	28.5	7.98	
Vinyl Window	10	0.28	1	8	16.0	4.48	
Vinyl Window	11	0.28	2	1	3.0	0.84	
Vinyl Window	12	0.28	1	3	4.5	1.26	
Vinyl Window	13	0.28	6	6	36.0	10.08	
Vinyl Window	14	0.28	2	2	20.0	5.60	
Vinyl Window	15	0.28	2	4	16.0	4.48	
Vinyl Window	16	0.28	2	4	48.0	13.44	
Vinyl Window	17	0.28	1	10	60.0	16.80	
Vinyl Window	18	0.28	1	4	8.0	2.24	
Vinyl Window	19	0.28	1	4	8.0	2.24	
Vinyl Window	20	0.28	1	5	13.8	3.85	
Vinyl Window	21	0.28	2	2	16.0	4.48	
Vinyl Window	22	0.28	1	4	24.0	6.72	
Vinyl Window	23	0.28	2	6	66.0	18.48	
Entry door to house	A	0.28	1	3	24.0	6.72	
Garage door to house	B	0.28	1	3	24.0	6.72	
					0.0	0.00	

Sum of Vertical Fenestration Area and UA: 824.8 230.93
 Vertical Fenestration Area Weighted U = UA/Area: 0.28

Overhead Glazing (Skylights)

Component Description	Ref.	U-factor	Qt.	Width Feet	Height Feet	Area	UA
Master Bath Skylight (aluminum)	s1	0.28	1	2	2	4.0	1.12
Master Bath Skylight (aluminum)	s2	0.28	1	2	4	8.0	2.24
						0.0	0.00
						0.0	0.00
						0.0	0.00
						0.0	0.00

Sum of Overhead Glazing Area and UA: 12.0 3.36
 Overhead Glazing Area Weighted U = UA/Area: 0.28

Total Sum of Fenestration Area and UA (for heating system sizing calculations): 836.8 234.29

Simple Heating System Size: Washington State
 This heating system sizing calculator is based on the Prescriptive Requirements of the 2015 Washington State Energy Code (WSEC) and ACCA Manuals J and S. This calculator will calculate heating loads only. ACCA procedures for sizing cooling systems should be used to determine cooling loads.

Please fill out all of the green drop-downs and boxes that are applicable to your project. As you make selections in the drop-downs for each section, some values will be calculated for you. If you do not see the selection you need in the drop-down options, please call the WSU Energy Extension Program at (360) 956-2042 for assistance.

Project Information
 Merlino Residence
 Mercer Island, WA

Contact Information

Heating System Type: All Other Systems Heat Pump

To see detailed instructions for each section, place your cursor on the word "Instructions".

Design Temperature
 Instructions: Mercer Island Design Temperature Difference (ΔT): 45
 ΔT = Indoor (70 degrees) - Outdoor Design Temp

Area of Building
 Conditioned Floor Area: 3,785 sq ft

Average Ceiling Height
 Instructions: Average Ceiling Height (ft): 9.5 Conditioned Volume: 35,768

Glazing and Doors
 Instructions: U-Factor X Area = UA
 U-Factor: 0.28 Area: 825 UA: 231.00

Skylights
 Instructions: U-Factor X Area = UA
 U-Factor: 0.50 Area: 12 UA: 6.00

Insulation
 Attic: Instructions: R-49 U-Factor X Area = UA
 U-Factor: 0.026 Area: 2,857 UA: 74.28

Single Rafter or Joist Vaulted Ceilings
 Instructions: No selection UA: ---

Above Grade Walls (see Figure 1)
 Instructions: R-21 Intermediate U-Factor X Area = UA
 U-Factor: 0.056 Area: 5,289 UA: 296.18

Floors
 Instructions: R-38 U-Factor X Area = UA
 U-Factor: 0.025 Area: 2,857 UA: 71.43

Below Grade Walls (see Figure 1)
 Instructions: No selection UA: ---

Slab Below Grade (see Figure 1)
 Instructions: Select conditioning F-Factor X Length = UA
 No selection UA: ---

Slab on Grade (see Figure 1)
 Instructions: Select R-Value F-Factor X Length = UA
 No selection UA: ---

Location of Ducts
 Instructions: Unconditioned Space Duct Leakage Coefficient: 1.10

Figure 1:

Summary:
 Sum of UA: 678.89
 Envelope Heat Load: 30,550 Btu / Hour
 Air Leakage Heat Load: 17,383 Btu / Hour
 Building Design Heat Load: 47,933 Btu / Hour
 Building and Duct Heat Load: 52,726 Btu / Hour
 Maximum Heat Equipment Output: 73,817 Btu / Hour

Prescriptive Energy Code Compliance for All Climate Zones in Washington

Project Information
 Merlino Residence
 Mercer Island, WA

Contact Information
 Dan Brobst
 Brobst Design Works
 dan@brobstdesignworks.com

This project will use the requirements of the Prescriptive Path below and incorporate the minimum values listed. In addition, based on the size of the structure, the appropriate number of additional credits are checked as chosen by the permit applicant.

Authorized Representative: _____ Date: _____

All Climate Zones

Fenestration U-Factor ^a	R-Value ^a	U-Factor ^a
Fenestration U-Factor ^a	n/a	0.30
Skylight U-Factor	n/a	0.50
Glazed Fenestration SHGC ^{b,c}	n/a	n/a
Ceiling ^d	49 ^d	0.026
Wood Frame Wall ^{e,m,n}	21 int	0.056
Mass Wall R-Value ^e	21/21 ⁿ	0.056
Floor	30 ^o	0.029
Below Grade Wall ^{o,m}	10/15/21 int + TB	0.042
Slab ^o R-Value & Depth	10, 2 ft	n/a

*Table R402.1.1 and Table R402.1.3 Footnotes included on Page 2.

Each dwelling unit in a residential building shall comply with sufficient options from Table R406.2 so as to achieve the following minimum number of credits:

- Small Dwelling Unit: 1.5 credits
 Dwelling units less than 1500 square feet in conditioned floor area with less than 300 square feet of fenestration area. Additions to existing building that are greater than 500 square feet of heated floor area but less than 1500 square feet.
- Medium Dwelling Unit: 3.5 credits
 All dwelling units that are not included in #1 or #3. Exception: Dwelling units serving R-2 occupancies shall require 2.5 credits.
- Large Dwelling Unit: 4.5 credits
 Dwelling units exceeding 5000 square feet of conditioned floor area.
- Additions less than 500 square feet: .5 credits

Table R406.2 Summary

Option	Description	Credit(s)
1a	Efficient Building Envelope 1a	0.5
1b	Efficient Building Envelope 1b	1.0
1c	Efficient Building Envelope 1c	2.0
1d	Efficient Building Envelope 1d	0.5
2a	Air Leakage Control and Efficient Ventilation 2a	0.5
2b	Air Leakage Control and Efficient Ventilation 2b	1.0
2c	Air Leakage Control and Efficient Ventilation 2c	1.5
3a	High Efficiency HVAC 3a	1.0
3b	High Efficiency HVAC 3b	1.0
3c	High Efficiency HVAC 3c	1.5
3d	High Efficiency HVAC 3d	1.0
4	High Efficiency HVAC Distribution System	1.0
5a	Efficient Water Heating 5a	0.5
5b	Efficient Water Heating 5b	1.0
5c	Efficient Water Heating 5c	1.5
5d	Efficient Water Heating 5d	0.5
6	Renewable Electric Energy	0.5

Total Credits: 3.50
 *Please refer to Table R406.2 for complete option descriptions

FRESH AIR IN HABITABLE ROOMS SHALL BE PROVIDED THROUGH WINDOWS, DOORS, SKYLIGHTS, LOUVERS OR OTHER APPROVED OPENINGS TO THE OUTDOOR AIR. SUCH OPENINGS SHALL BE PROVIDED WITH READY ACCESS OR SHALL OTHERWISE BE READILY CONTROLLABLE BY THE BUILDING OCCUPANTS. THE OPENABLE AREA TO THE OUTDOORS SHALL NOT BE LESS THAN 4% OF THE FLOOR AREA BEING VENTILATED. R303.1

M1507.3.4.4: EACH HABITABLE SPACE SHALL BE PROVIDED WITH VENTILATION OPENINGS WITH AN OPENABLE AREA NOT LESS THAN 4% OF THE FLOOR AREA NOR LESS THAN 5 SQ. FT. WHERE OUTDOOR AIR SUPPLIES HABITABLE SPACES ARE SEPARATED FROM EXHAUST POINTS BY DOORS, PROVISIONS SHALL BE MADE TO ENSURE AIR FLOW BY INSTALLATION OF DISTRIBUTION DUCTS, UNDERCUTTING DOORS, INSTALLATION OF GRILLES, TRANSOM OR SIMILAR MEANS. DOORS SHALL BE UNDERCUT TO A MINIMUM OF 1/2" ABOVE THE SURFACE FOR THE FINISHED FLOOR COVERING

EXCEPTION: VENTILATION OPENINGS MAY BE PROVIDED TO EACH HABITABLE SPACE BY INDIVIDUAL OUTDOOR AIR INLETS. INDIVIDUAL ROOM OUTDOOR AIR INLETS SHALL:
 1. HAVE CONTROLLABLE AND SECURE OPENINGS
 2. BE SLEEVED OR OTHERWISE DESIGNED SO AS NOT TO COMPROMISE THE THERMAL PROPERTIES OF THE WALL OR WINDOW IN WHICH THEY ARE PLACED
 3. PROVIDE NOT LESS THAN 4 SQ. IN. OF NET FREE AREA OF OPENING FOR EACH HABITABLE SPACE. ANY INLET OR COMBINATION OF INLETS WHICH PROVIDE 10 CFM AT 10 PASCALS ARE DEEMED EQUIVALENT TO 4 SQ. IN OF NET FREE AREA.

VENTILATION OPENINGS SHALL BE SCREENED OR OTHERWISE PROTECTED FROM ENTRY BY LEAVES OR OTHER MATERIAL, AND SHALL BE LOCATED SO AS NOT TO TAKE AIR FROM THE FOLLOWING AREAS:
 1. CLOSER THAN 10 FEET FROM AN APPLIANCE VENT OUTLET, UNLESS SUCH VENT OUTLET IS 3 FEET ABOVE THE OUTDOOR AIR INLET.
 2. WHERE IT WILL PICK UP OBJECTIONABLE ODORS, FUMES OR FLAMMABLE VAPORS.
 3. A HAZARDOUS OR UNSANITARY LOCATION
 4. A ROOM OR SPACE HAVING ANY FUEL-BURNING APPLIANCES THEREIN.
 5. CLOSER THAN 10 FEET FROM A VENT OPENING OF A PLUMBING DRAINAGE SYSTEM UNLESS THE VENT OPENING IS AT LEAST 3 FEET ABOVE THE AIR INLET.
 6. ATTIC, CRAWL SPACES OR GARAGES

2015 IRC WHOLE HOUSE VENTILATION INFORMATION
 WHOLE HOUSE VENTILATION SYSTEM (CHECK ONE)

OPTION 1 - IRC M1507.3.4 WHOLE HOUSE VENTING USING EXHAUST FANS
 OPTION 2 - IRC M1507.3.5 WHOLE HOUSE VENTILATION USING INTEGRATED WITH CENTRAL HEATING
 OPTION 3 - IRC M1507.3.6 WHOLE HOUSE VENTILATION DUCTED FROM SUPPLY FAN
 OPTION 7 - IRC M1507.3.7 WHOLE HOUSE VENTILATION HEAT RECOVERY VENTILATION SYSTEM

WHOLE HOUSE VENTILATION RATE: 90 CFM FROM TABLE M1507.3.3(1) FOR OPTION 1
 CONTINUOUS OPERATION

KEY REQUIREMENTS OF EACH SYSTEM:

IRC M1507.3.4 WHOLE HOUSE VENTING USING EXHAUST FANS
 - WHOLE HOUSE FANS LOCATED 4 FEET OR LESS FROM THE INTERIOR GRILL SHALL HAVE A SONE RATING OF 1.0 OR LESS.
 - ALL EXHAUST DUCTS SHALL TERMINATE OUTSIDE THE BUILDING.
 - OUTDOOR AIR SHALL BE DISTRIBUTED TO EACH HABITABLE ROOM.

ALL SYSTEMS IRC M1507.3.2:
 THE WHOLE HOUSE VENTILATION FAN SHALL BE CONTROLLED BY A 24-HOUR CLOCK TIMER WITH THE CAPABILITY OF CONTINUOUS OPERATION, MANUAL AND AUTOMATIC CONTROL. SET TO OPERATE 8 HOURS A DAY & LABELED.

NOTE: THE ABOVE NOTES ARE EXCERPTS FROM THE CODE. FOR COMPLETE DETAILS, YOU MUST REFER TO THE CODE SECTIONS FOR TOTAL COMPLIANCE.

TABLE M1507.4
 MINIMUM REQUIRED EXHAUST RATES FOR ONE AND TWO FAMILY DWELLINGS

AREA TO BE VENTILATED	VENTILATION RATES
KITCHENS	100 CFM INTERMEDIATE OR 25 CFM CONTINUOUS
BATHROOMS - TOILET ROOMS	MECHANICAL EXHAUST CAPACITY OF 50 CFM INTERMITTENT OR 20 CFM CONTINUOUS

TABLE M1507.3.3(1)
 MINIMUM VENTILATION RATES (CONTINUOUSLY OPERATING SYSTEMS)

(FT.)	BEDROOMS (1)				
	0-1	2-3	4-5	6-7	>7
<1500	30	45	60	75	90
1501-3000	45	60	75	90	105
3001-4500	60	75	90	105	120
4501-6000	75	90	105	120	135
6001-7500	90	105	120	135	150
>7500	105	120	135	150	165

(1) VENTILATION RATES IN TABLE ARE MINIMUM OUTDOOR AIRFLOW RATES MEASURED IN CFM.

Table R402.1.1 Footnotes

For SI: 1 foot = 304.8 mm, ci = continuous insulation, int = intermediate framing.

^a R-values are minimums. U-factors and SHGC are maximums. When insulation is installed in a cavity which is less than the label or design thickness of the insulation, the compressed R-value of the insulation from Appendix Table A101.4 shall not be less than the R-value specified in the table.

^b The fenestration U-factor column excludes skylights. The SHGC column applies to all glazed fenestration.

^c "10/15/21+TB" means R-10 continuous insulation on the exterior of the wall, or R-15 on the continuous insulation on the interior of the wall, or R-21 cavity insulation plus a thermal break between the slab and the basement wall at the interior of the basement wall. "10/15/21+TB" shall be permitted to be met with R-13 cavity insulation on the interior of the basement wall plus R-5 continuous insulation on the interior or exterior of the wall. "10/13" means R-10 continuous insulation on the interior or exterior of the home or R-13 cavity insulation at the interior of the basement wall. "TB" means thermal break between floor slab and basement wall.

^d R-10 continuous insulation is required under heated slab on grade floors. See R402.2.9.1.

^e There are no SHGC requirements in the Marine Zone.

^f Reserved.

^g Reserved.

^h Reserved.

ⁱ The second R-value applies when more than half the insulation is on the interior of the mass wall.

^j Reserved.

^k For single rafter- or joist-vaulted ceilings, the insulation may be reduced to R-38.

^l Reserved.

^m Int. (intermediate framing) denotes standard framing 16 inches on center with headers insulated with a minimum R-value.

Table R402.1.3 Footnote
ⁿ Nonfenestration U-factors shall be obtained from measurement, calculation or an approved source or as specified.

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MERLINO RESIDENCE ENERGY / VIAQ NOTES
 2015 CODE VERSION

MERLINO RESIDENCE
 4225 89TH AVE SE MERCER ISLAND, WA 98040

REVISION: _____
 SCALE: 1/4" = 1'-0"
 DATE: 11.10.2020
 COMPUTER FILE NAME: MERCER ISLAND
 SHEET NUMBER: N1.1

GROUP R-3 OCCUPANCY

Wind and Snow load factors may vary based on geographical location.

GENERAL

DEFINITION: Habitable Space (room) is space in a structure for living, sleeping, eating or cooking. Bathrooms, toilet compartments, closets, halls, storage or utility space and similar areas, are not considered habitable space. Section R202.

1. Ceiling Heights. R305.1

Habitable rooms, hallways, corridors, bathrooms, toilet rooms, laundry rooms and basements shall have a ceiling height of not less than 7 feet. The required height shall be measured from the finished floor to the lowest projection from the ceiling.

Exceptions:

1. Beams and girders spaced not less than 4 feet on center may project not more than 6 inches below the required ceiling height.
2. Ceilings in basements without habitable spaces may project to within 6"-8" of the finished floor, and beams, girders, ducts or other obstructions may project to within 6"-4" of the finished floor.
3. Not more than 50% of the required floor area of a room or space is permitted to have a sloped ceiling less than 7 feet in height, with no portion of the required floor area less than 5 feet in height.
4. Bathrooms shall have a min. ceiling height of 6'-8" over the fixture and at the front clearance area for fixtures. A shower or tub equipped with a showerhead shall have a min. ceiling height of 6'-8" above a min. area 30"x30" at the showerhead.

LIGHT, VENTILATION AND SANITATION

1. All habitable rooms shall be provided with aggregate glazing area of not less than 8% of the floor area of such rooms. Natural ventilation shall be through windows, doors, louvers or other approved openings to the outdoor air. Such openings shall be provided with ready access or shall otherwise be readily controllable by the occupants. Section R303.1
Exceptions provided per Section R303.1

2. Ventilation. Group R Occupancies shall be provided with ventilation systems which comply with Section 303
The point of discharge for mechanical ventilating systems shall be at least 3 feet from any opening which allows air entry into occupied portions of the building. M1506.3

Refer to additional exhaust ventilation requirements in Section R303.3 for bathrooms and water closets. See Chapter 15 for kitchens & laundry room requirements.

3. Range & Dryer Vents. Ducts used for domestic kitchen range ventilation and clothes dryers exhaust shall be of metal and have smooth interior surfaces. Ducts shall be substantially airtight and shall comply with the provisions of Chapter 15. Exhaust ducts shall terminate outside the building and be equipped with back draft dampers. Sections M1501, M1502 & M1503

4. Moisture Exhaust Ducts. Moisture exhaust ducts for domestic clothes dryers shall terminate on the outside of the building and shall be equipped with a back-draft damper. Screens shall not be installed at the duct termination. Ducts for exhausting clothes dryers shall not be connected or installed with sheet metal screws or other fasteners which will obstruct the flow. Clothes dryer moisture exhaust ducts shall not be connected to a gas vent connector, gas vent or chimney. Clothes-dryer moisture exhaust ducts shall not extend into or through ducts or plenums. Length Limitation. Unless otherwise permitted or required by the dryer manufacturer's installation instructions and approved by the building official, domestic dryer moisture exhaust ducts shall not exceed a total combined horizontal and vertical length of 35 feet, with reductions for elbows per TABLE M1502.4.5.1

5. Water Closet Space Requirements. The water closet stool in all occupancies shall be located in a clear space not less than 30 inches in width, with a clear space in front of the stool of not less than 24"

6. Tub & Shower Walls. When gypsum is used as a base for tile or wall panels for tub, shower or water closet compartment walls, water-resistant gypsum backing board shall be used. Regular gypsum wallboard is permitted under tile or wall panels in other wall and ceiling areas

Water-resistant gypsum board shall not be used in the following locations:

- a) Over a vapor retarder.
- b) In areas subject to continuous high humidity, such as saunas, steam rooms or gang shower rooms.
- c) On ceilings where frame spacing exceeds 12 inches on center.

FOUNDATIONS

7. Slope Limits. Cut slopes for permanent excavations shall be not steeper than 2 horizontal to 1 vertical and slopes for permanent fills shall be not steeper than 2 horizontal to 1 vertical unless substantiating data justifying steeper slopes are submitted. Deviation from the foregoing limitations for slopes shall be permitted only upon the presentation of a soil investigation report acceptable to the building official.

8. Setbacks from Slopes. Foundation setbacks from ascending and descending slopes shall comply with Figure R403.1.7.1

9. Stepped Foundations. Foundations for all buildings where the surface of the ground slopes more than 1 foot vertical in 10 feet horizontal shall be level or shall be stepped so that both top and bottom of such foundation are level. Section R403.1.5

10. Pier Footings. Individual concrete pier footings shall project minimum of 8 inches above exposed ground unless the columns or posts are of approved wood of natural resistance to decay or of treated wood. Exterior concrete piers shall be 12" minimum below grad or to bearing soil whichever is greater

11. Column and Posts Supports. Columns and posts located on concrete or masonry floors or decks exposed to the weather or to water splash or in basements and which support permanent structures shall be supported by concrete piers or metal pedestals projecting above floors unless approved wood of natural resistance to decay or treated wood is used. The pedestals shall project at least 6 inches above exposed earth and at least 1 inch above such floors.

12. Under-floor Clearance & Access. When wood joists or the bottom of wood structural floors without joists are located closer than 18 inches or wood girders are located closer than 12 inches to exposed ground in crawl spaces or unexcavated areas located within the periphery of the building foundation, the floor assembly, including posts, girders, joists and subfloor, shall be approved wood of natural resistance to decay as listed in Section R317.1 or treated wood.

When the above under-floor clearances are required, the under-floor area shall be accessible. Accessible under-floor areas shall be provided with a minimum 18 inch-by-24 inch opening unobstructed by pipes, ducts and similar construction. All under-floor access openings shall be effectively screened or covered. Pipes, ducts and other construction shall not interfere with the accessibility to or within under-floor areas. Section R408.4

13. Under-floor Ventilation. Under-floor ventilation, minimum net area of 1 square foot for each 150 square feet of under floor area, one opening shall be located within 3' of each corner of the building and shall provide cross ventilation. The openings shall be covered with one-quarter inch corrosion resistant wire mesh. Section R408.2

FRAMING

14. Quality & Identification. All lumber, wood structural panels, particleboard, structural glued-laminated timber, end-jointed lumber, fiberboard sheathing (when used structurally), hardboard siding (when used structurally), piles and poles regulated by this chapter shall conform to the applicable standards and grading rules specified in the IRC and shall be so identified by the grade mark or a certificate of inspection issued by an approved agency. All preservative treated wood required to be treated under Section R317 shall be identified by the quality mark of an approved inspection.

15. Foundation Cripple Walls. Foundation cripple walls shall be framed of studs not less in size than the studs above with a minimum length of 14 inches, or shall be framed of solid blocking. When exceeding 4 feet in height, such walls shall be framed of studs having the size requirements for an additional story. Solid blocking or wood structural panels may be used to brace cripple walls having a stud height of 14 inches or less. Cripple walls having a stud height exceeding 14 inches shall be braced in accordance with Section R602.9.

16. BEARING: the ends of each floor joist shall have not less than 1-1/2 inches of bearing on wood or metal, nor less than 3 inches on masonry except where supported on a 1 x 4 ribbon strip nailed to adjoining stud. Section R502.6.

17. Supporting Bearing Partitions. Supporting bearing partitions perpendicular to floor joists shall not be offset from supporting girders, walls, or partitions more than floor joist depth. Floor joists under and parallel to bearing partitions shall be doubled.

18. Cutting, Notching and Boring.

A. Notches on ends of rafters and ceiling joists shall not exceed one-fourth of the depth. Holes bored in rafters or ceiling joists shall not be within 2 inches of the top or bottom, and their diameter shall not exceed one-third the depth of the member. Notches in the top or bottom of the rafter or ceiling joist shall not exceed one-sixth the depth and shall not be located in the middle third of the span. Sections R602.6, IRC.
B. In exterior walls and bearing partitions, any wood stud may be cut or notched to a depth not exceeding 25% of its width. Cutting or notching of studs to a depth of 40% of the stud width is permitted in non-bearing partitions. Section R602.6
C. Notches in sawn lumber beams shall not exceed one-sixth the beam depth of the member and shall not be located in the middle third of the span. Notches at the ends shall not exceed one-fourth the beam depth. The tension side of sawn lumber beams of 3-1/2 inches or greater thickness shall not be notched except at the ends.

D. Manufactured glue laminated beams may not be notched, cut or bored without submission and approval of substantiating calculations from a licensed Structural Engineer.

Cutting, Drilling, Notching Structural members shall not be cut, bored or notched in excess of the limitations specified in Sections: R502.8.1, R602.6, R802.7

19. Bridging and Blocking

Wall Framing. Bridging. Unless covered by interior or exterior wall covering or sheathing meeting the minimum requirements of this code, all stud partitions or walls with studs having a height-to-least thickness ratio exceeding 50 shall have bridging not less than 2 inches in thickness and of the same width of the studs fitted snugly and nailed thereto to provide adequate lateral support.

Floor Joists. Blocking. Floor joists shall be blocked when required by the provisions R502.7.1

Roof Framing. Blocking. Roof rafters and ceiling joists shall be supported laterally to prevent rotation and lateral displacement. R802.10.3

20. Post-Beam Connections. Where post and beam or girder construction is used, the design shall be in accordance with the provisions of this code. Positive connection shall be provided to ensure against uplift and lateral displacement.

21. Manufactured Roof Trusses --Sections R802.10.1.

A. Trusses. Stress analysis and drawings/details shall be stamped by an approved State of Washington Registered Engineer. Drawings/details shall be on job site for framing inspection.

Pre-manufactured trusses shall be identified by manufacturer's stamp. Girder and field identification of light metal plate connected trusses is required.

Information branded, marked, or otherwise permanently affixed to each truss shall contain the following:

- 1) identification of the truss manufacturing company;
- 2) the design load; and
- 3) the truss spacing.

Engineering data and details shall be approved by the building official before any field cuts or truss alterations.

All roof trusses shall be so framed and tied into the framework 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 roof trusses.
B. Girder and Field Assembled Truss. Engineered stress analysis and details shall be submitted to building division for approval.
C. Use approved/applicable truss support hangers.

22. Wood Exposed to Weather. All wood exposed to weather, such as wood used for deck framing including decking, railings, joists, beams, and posts shall be pressure treated or of wood with natural resistance to decay. Section R317

23. Guardrails. When decks, landings, stairs, ramps or porches are more than 30 inches above grade or floor below, the building shall be protected by a guardrail not less than 36 inches high with intermediate members spaced such that a sphere 4 inches in diameter cannot pass through. Section R312

24. Decks. Decks 30 inches or more above grade require a permit. All decks must be designed and constructed in accordance with Section R507 IRC

Solid Sheathed Decks and Roofs. Solid sheathed decks and roofs shall be sloped a minimum 1/4 " per foot. When decks or roofs are not sloped to drain over deck or roof edges, roof drains in combination with overflow drain(s) and/or scupper(s) shall be installed. R903.4, R903.4.1

25. Roofs. Application of roof covering materials shall be in accordance with Section R903

26. Roof Ventilation. The net free ventilating area of enclosed rafter or attic spaces shall be not less than 1/150 of the area of each space to be ventilated, except that the area may be 1/300, provided that 50% of the required ventilating area is located at least 3 feet above eave or cornice vents with the balance being provided by the eave or cornice vents, or if a vapor retarder not exceeding a 1 perm rating is installed on the warm side of the attic insulation. The openings shall be covered with corrosion-resistant metal mesh with mesh openings of 1/4 inch max. & 1/16 inch min. Section R806.

27. Flashing & Counter-flashing. At the juncture of the roof and vertical surfaces, flashing and counterflashing shall be provided per the roofing manufacturer's instructions and , when of metal, shall not be less than 0.019- inch (No. 26 ga. galvanized steel) corrosion-resistant metal. Section R903.2, R903.2.1, R903.2.2

28. Attic Space Access Opening. Attic spaces with 30 inches or more in vertical height and an area of 30 square feet or greater, shall be provided with an access opening 22 inches by 30 inches. The opening shall be located in a corridor, hallway or other readily accessible location and have at least 30 inches head room. Section R807.1

EXTERIOR WALLS

29. Exterior Wall Coverings. Exterior wood stud walls shall be covered on the outside with materials and in the manner specified in Section R703,

30. All weather-exposed surfaces shall have a weather-resistant barrier to protect the interior wall covering. Section R703.1 IRC

31. Anchored veneer shall comply with the provisions of Section R703.8, and Table R703.8(1) & (2), Figure R703.8

32. Veneer support shall conform to all standards in Section R703.8.2

GARAGE / CARPORT (occupancy separation)

33. The garage shall be separated from the residence and its attic area by not less than 1/2" type "X" gypsum board applied to the garage side. Garages beneath habitable rooms shall be separated from all habitable rooms above by not less than 5/8" Type X gypsum board or equivalent. Where the separation is a floor-ceiling assembly, the structure supporting the separation shall also be protected by not less than 1/2" gypsum board or equivalent.

34. Doors between the garage and residence shall be equipped with solid wood doors not less than 1-3/8" in thickness, solid or honeycomb core steel doors not less than 1-3/8" thick, or 20-minute fire-rated door.

35. In areas where motor vehicles are stored or operated, floor surfaces shall be of noncombustible materials & slope to move liquid away.

36. An occupancy separation need not be provided between residence and a carport having no enclosed uses above, provided the carport is entirely open on two or more sides.

MEANS OF EGRESS

DEFINITIONS: A means of egress is an exit system that provides a continuous, unobstructed and unadorned path of exit travel from any occupied point in a building or structure to a public way. Such means of egress system consists of three separate and distinct elements: 1.) The exit access, 2.) The exit, and 3.) The exit discharge. Public way is any street, alley, or similar parcel of land essentially unobstructed from the ground to the sky that is deeded, dedicated or otherwise permanently appropriated to the public for public use and having a clear width of not less than 10 feet.

37. Exterior Exit Door. Buildings or structures used for human occupancy shall have at least one exterior exit door with dimensions of 3 feet by 6 feet, 8 inches. Sections R311.2, IRC.

38. Hallways. Width. Hallways shall not be less than 36 inches wide. Section R311.6, IRC.

39. Door Landing. A floor or landing is required on each side of an exterior door. The door may open at a landing that is not more than 7-3/4" inches lower than the floor level, provided the door does not swing over the landing. The landing shall be 36 inches in length minimum. Section R311.3

40. WINDOW EGRESS

R310.1: Emergency escape and rescue required: Basements, habitable attics and every sleeping room shall have at least one operable emergency escape and rescue opening. Where basements contain one or more sleeping rooms, emergency egress and rescue openings shall be required in each sleeping room. Where emergency escape and rescue openings are provided they shall have a sill height of not more than 44 inches above the floor. Where a door opening having a threshold below the adjacent ground elevation serves as an emergency escape and rescue opening and is provided with a bulkhead enclosure, the bulkhead enclosure shall comply with IRC Section R310.3. The net clear opening dimensions required by this section shall be obtained by the normal operation of the emergency escape and rescue opening from the inside. Emergency escape and rescue openings with a finished sill height below the adjacent ground elevation shall be provided with a window well in accordance with Section R310.2. Emergency escape and rescue openings shall open directly into a public way, or to a yard or court that opens to a public way.

Exception: Basements used only to house mechanical equipment or storm shelters and not exceeding total floor area of 200 square feet

2015 IRC R310.2.1: Minimum opening area. All emergency escape and rescue openings shall have a minimum net clear opening of 5.7 square feet.

Exception: Grade floor openings shall have a minimum net clear opening of 5 s.f.

R310.2.1: Minimum opening height. The minimum net clear openings height shall be 24 inches.

R310.2.1: Minimum opening width. The minimum net clear opening width shall be 20 inches.

2015 IRC R310.1.1: Operational constraints. Emergency escape and rescue openings shall be operational from the inside of the room without the use of keys, tools or special knowledge.

MISCELLANEOUS

41-A. Smoke Detection Location. A smoke detector shall be installed in each sleeping room and outside each separate sleeping area in the immediate vicinity of each bedroom. When the dwelling unit has more than one story and in dwellings with basements, a detector shall be installed on each story and in the basement. Smoke alarms shall be installed not less than 3' horiz. from the door opening to a bathroom with a shower or tub unless this would prevent placement required by R314.3. See Section R314.3.1 for placement of smoke alarms near cooking appliances. Not less than 20' for ionization type, not less than 10' ionization with an alarm-silencing switch or not less than 6' for a photoelectric type.

41-B. Carbon Monoxide Alarms. A Carbon monoxide alarm shall be installed outside of each separate sleeping area in the immediate vicinity of the bedrooms. Where a fuel burning appliance is located within a bedroom or it's attached bathroom, a carbon monoxide alarm shall be installed within the bedroom. R315.3

Alarms shall be listed as complying with UL 2034 and installed per manufacturer's listing. R315.2 WAC, R315.1, R315.4 WA. State ammendment

FACTORY BUILT FIREPLACES

Factory built fireplaces shall be listed and labeled and shall be installed in accordance with the conditions of the listing. Factory-built fireplaces shall be tested in accordance with UL 127. R1004.1
Fireplaces shall comply with all provisions of section R1004

42. Installation of vented gas fireplaces (decorative appliances) shall be in accordance with the manufacturer's installation instructions. And shall comply with all standards of Section G2434 (604) IRC

43. Gas Fire Log Lighters. Approved gas fire log lighters shall be installed in accordance with manufacturer's installation instructions. Section G2433.1

STAIRWAYS

44. Usable space under stairs shall have walls and soffits (on the enclosed side) protected as required for 1-hour fire resistive construction.

45. Fireblock Stairs. Between stair stringers at top and bottom and along and in line with the run of the stairs between studs.

46. Stairways. Section R311.7 IRC
Maximum rise 7-3/4" inches; minimum run 10 inches; headroom minimum 6 feet 8 inches; minimum width 36 inches.

Handrails to have ends returned and placed minimum 34 inches, maximum 38 inches above tread nosing. Unless designated for the disabled, the handgrip portion of handrails shall be not less than 1-1/4 inches nor more than 2 inches in cross-sectional dimension or the shape shall provide an equivalent gripping surface.

The handgrip portion of handrails shall have a smooth surface with no sharp corners. Handrails projecting from a wall shall have a space of not less than 1-1/2 inches between the wall and the handrail.

Exit Facilities. Stairs and exit balconies shall be positively anchored to the primary structure at 8 feet on center max. or be designed for lateral forces. Such attachment shall not be accomplished by use of toenails or nails subject to withdrawal.

GLAZING

47. Safety Glazing. Safety glass must comply with Section R308 IRC