

DEVELOPMENT REVIEW APPLICATION

For Office Use Only		
STAFF CONTACT <i>Peter Spir</i>	PROJECT NO(S). <i>MI-1305</i>	
NON-REFUNDABLE FEE(S)	REFUNDABLE DEPOSIT(S) <i>\$1050</i>	TOTAL <i>1050-</i>

Type of Review (Please check all that apply):

- | | | |
|--|---|--|
| <input type="checkbox"/> Annexation (ANX) | <input type="checkbox"/> Historic Review | <input type="checkbox"/> Subdivision (SUB) |
| <input type="checkbox"/> Appeal and Review (AP) * | <input type="checkbox"/> Legislative Plan or Change | <input type="checkbox"/> Temporary Uses * |
| <input type="checkbox"/> Conditional Use (CUP) | <input type="checkbox"/> Lot Line Adjustment (LLA) */** | <input type="checkbox"/> Time Extension * |
| <input type="checkbox"/> Design Review (DR) | <input type="checkbox"/> Minor Partition (MIP) (Preliminary Plat or Plan) | <input type="checkbox"/> Variance (VAR) |
| <input type="checkbox"/> Easement Vacation | <input type="checkbox"/> Non-Conforming Lots, Uses & Structures | <input type="checkbox"/> Water Resource Area Protection/Single Lot (WAP) |
| <input type="checkbox"/> Extraterritorial Ext. of Utilities | <input type="checkbox"/> Planned Unit Development (PUD) | <input type="checkbox"/> Water Resource Area Protection/Wetland (WAP) |
| <input type="checkbox"/> Final Plat or Plan (FP) | <input type="checkbox"/> Pre-Application Conference (PA) */** | <input type="checkbox"/> Willamette & Tualatin River Greenway (WRG) |
| <input checked="" type="checkbox"/> Flood Management Area | <input type="checkbox"/> Street Vacation | <input type="checkbox"/> Zone Change |
| <input type="checkbox"/> Hillside Protection & Erosion Control | | |

Home Occupation, Pre-Application, Sidewalk Use, Sign Review Permit, and Temporary Sign Permit applications require different or additional application forms, available on the City website or at City Hall.

Site Location/Address: <i>19220 Nixon Ave</i> <i>West Linn, OR 97068</i>	Assessor's Map No.: <i>21E24AC</i>
	Tax Lot(s): <i>1700</i>
	Total Land Area: <i>12,761 Sq Ft</i>

Brief Description of Proposal:
Small office addition and addition of exterior entry stairs to replace existing dilapidated wood stairs

Applicant Name: <i>Arciform LLC / Bradley Horne</i> <small>(please print)</small> Address: <i>2303 N. Randolph Ave</i> City State Zip: <i>Portland, OR 97227</i>	Phone: <i>503.493.7344</i> Email: <i>brad@arciform.com</i>
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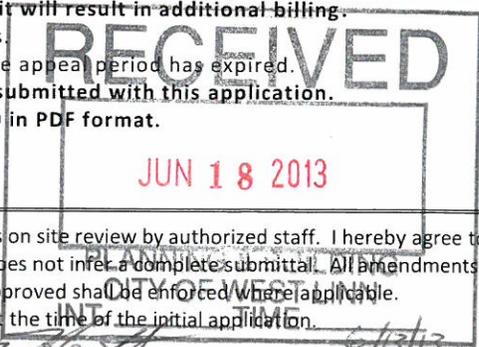
Owner Name (required): <i>Julie Heath</i> <small>(please print)</small> Address: <i>19220 Nixon Ave</i> City State Zip: <i>West Linn, OR 97068</i>	Phone: <i>503.307.1053</i> Email: <i>jawheath@msn.com</i>
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Consultant Name: <i>Shane Empey</i> <small>(please print)</small> Address: <i>13995 SE Matilda Dr.</i> City State Zip: <i>Milwaukie, OR 97267</i>	Phone: <i>503.998.7704</i> Email: <i>Shane-Empey, PE@gmail.com</i>
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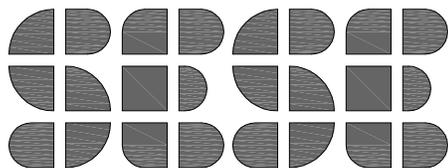
1. All application fees are non-refundable (excluding deposit). **Any overruns to deposit will result in additional billing.**
2. The owner/applicant or their representative should be present at all public hearings.
3. A denial or approval may be reversed on appeal. No permit will be in effect until the appeal period has expired.
4. **Three (3) complete hard-copy sets (single sided) of application materials must be submitted with this application.**
One (1) complete set of digital application materials must also be submitted on CD in PDF format.
If large sets of plans are required in application please submit only two sets.

* No CD required / ** Only one hard-copy set needed

The undersigned property owner(s) hereby authorizes the filing of this application, and authorizes on site review by authorized staff. I hereby agree to comply with all code requirements applicable to my application. Acceptance of this application does not infer a complete submittal. All amendments to the Community Development Code and to other regulations adopted after the application is approved shall be enforced where applicable. Approved applications and subsequent development is not vested under the provisions in place at the time of the initial application.



<i>[Signature]</i> Applicant's signature	<i>6/18/13</i> Date	<i>[Signature]</i> Owner's signature (required)	<i>6/13/13</i> Date
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Shane
Empey, P.E.
Structural
Engineering

13995 SE MATILDA DR., MILWAUKIE OR, 97267, 503-998-7704. SHANE.EMPEY.PE@GMAIL.COM

Project: Heath Residence: Entry Addition/Remodel
 Client: Arciform Proj. No.: 13-103
 Date: June 2013 By: SAE Sheet No.: 1 / 1

Field Memo Subject: City of West Linn chapter 27.060 F&G, & chapter 27.080 B Time: -
 Job Observation To: Bradley Horne, Richard DeWolfe Ref. Sheet: -
 Revision Sketch Distribution: - - -

I HAVE PROVIDED CONSULTATION FOR THE DESIGN OF THE STRUCTURAL SYSTEM FOR THE PROPOSED FRONT ADDITION AND CONCRETE ENTRY STAIRWAY. IT HAS BEEN DISCOVERED THAT ALTHOUGH THE PROPERTY IS ELEVATED ABOVE THE RIVER AND IS ON A RELATIVELY FLAT LOT, IT HAS BEEN D

I HAVE BEEN ASKED TO PROVIDE MY OPINION OF THE LIKELIHOOD THAT THE PROPOSED SCOPE OF CONSTRUCTION WOULD IMPACT FLOOD LEVELS. BY DEFINITION, ANYTHING SUBMERGED IN A FLUID WITH ALL OTHER VARIABLES REMAINING CONSTANT, WILL RAISE THE FLUID LEVEL. I DON'T BELIEVE ANYONE IS ASKING FOR THIS ANSWER. IT IS MY UNDERSTANDING THAT IN THIS CASE, THE INTENT IS FOR A CIVIL ENGINEER, SOMEONE WITH ACADEMIC KNOWLEDGE OF DAMS AND DIKES, TO CATCH THE RARE OCCURRENCE WHEN A CONSTRUCTION PROJECT IS ALTERING THE TYPOGRAPHY OF THE RIVER BANK SUCH THAT IT MAY AFFECT FLOODWATERS ENOUGH TO CAUSE DAMAGE TO NEIGHBORING PROPERTIES.

THE PROJECT IN QUESTION IS LOCATED ON A RELATIVELY FLAT LOT WHICH IS ELEVATED ABOVE THE RIVER. THE ADDITION IS LOCATED IN AN INSIDE CORNER SUCH THAT THE RIVER FLOW EXPOSURE OF THE STRUCTURE HAS NOT BEEN INCREASED. THE CONCRETE ENTRY STAIRS NEXT TO THE DRIVEWAY WOULD INCREASE THE RIVER FLOW EXPOSURE BUT THE 3FT WIDE x 7FT TALL OPENING BETWEEN THE STAIRS AND BUILDING COULD ALLOW FOR A GREAT DEAL OF WATER FLOW. THE STAIRS WOULD NOT PRACTICALLY IMPEDE THE RIVER FLOW ANY MORE THAN A DRIVEWAY FULL OF CARS WOULD.

WITH SPECIFIC REGARDS TO:

27.060 (F) - THE ADDITION WILL REQUIRE EXCAVATION OF SOIL. THE STAIRS HAVE A FOOTPRINT APROX THAT OF A MINIVAN. I DO NOT BELIEVE THIS WILL CAUSE A SUBSTANTIAL INCREASE IN FLOOD LEVELS DURING THE OCCURRENCE OF THE BASE FLOOD.

27.060 (G) - I DO NOT BELIEVE THIS PROJECT IS LIKELY TO IMPACT THE FLOOD-CARRYING CAPACITY OF THE RIVER. DUAL FUNCTION VENTS HAVE BEEN PROVIDED TO ACCOMMODATE OPTIMAL RIVER FLOW DURING A FLOOD.

27.080 (B) -

1. THE DUAL PURPOSE VENTS BEING USED ARE MARKETED TO ACCOMMODATE 200 SQ FT OF FLOOR AREA. THE ADDITION IS LESS THAN 100 SQ FT.
2. TO MY KNOWLEDGE THE BOTTOM OF THE OPENING WILL BE WITHIN 1 FT OF GRADE.
3. TO MY KNOWLEDGE THE DUAL PURPOSE VENTS ARE MARKETED TO OPEN UPON FLOOD CONTACT.
4. THE AREA BELOW THE FLOOR IS ONLY INTENDED AS CRAWLSPACE.
5. TO MY KNOWLEDGE THERE ARE NO PLANS FOR NON-CRAWLSPACE USE.
6. TO MY KNOWLEDGE THERE ARE NO PLANS FOR ANY FINISHES.

TO CONCLUDE, I DO NOT FEEL THE PROPOSED ADDITION AND STAIRS WILL PRACTICALLY EFFECT THE FLOW OF THE FLOOD RIVER. THIS IS NOT BASED ON CALCULATIONS, ONLY MY INITIAL JUDGEMENT. SHOULD FURTHER EXPLORATION BE REQUIRED I COULD SEE TO IT THAT SUCH ANALYSIS BE PERFORMED.

SHANE EMPEY, P.E.
SHANE EMPEY STRUCTURAL ENGINEERING

STRUCTURAL CALCULATIONS

FOR

Heath Residence Entry Addition/Remodel

19220 Nixon Ave
West Linn, Oregon 97068



RENEWAL DATE: 12 / 31 / 2013

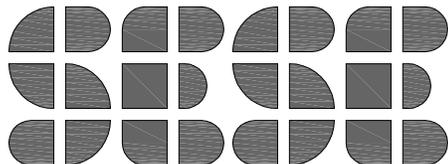
SHANE EMPEY STRUCTURAL ENGINEERING (SESE) was retained in a limited capacity for this project. Design is based upon information provided by the client who is solely responsible for accuracy of it. SESE has prepared these calculations solely for the items listed above. The owner, architect, and/or contractor shall hold SESE harmless for any member or system not part of this analysis.

No litigation may take place against SESE prior to documentation by multiple neutral parties registered as Professional Engineers as to errors found in these documents. The use of these documents represents acceptance of these terms.

Contents

Narrative	NARR
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Framing Calculations	1 - 6
Lateral Calculations	L1 - L4
Redlined Arch'l Drawings included as 8.5x11 sheets	R1 - R4

Contact Person: SHANE A. EMPEY



Shane
Empey, P.E.
Structural
Engineering

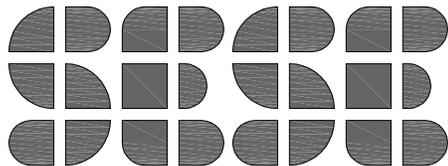
Project: Heath Residence:
Entry Addition/Remodel
Client: Arciform Proj. No.: 13-103
Date: March 2013 By: SAE Sheet No.: COVER

NARRATIVE

THE EXISTING SINGLE TWO STORY RESIDENCE IS A CONVENTIONALLY WOOD FRAMED STRUCTURE WITH WOOD DIAPHRAGMS. IT IS PROPOSED TO DO THE FOLLOWING:

- REMOVE THE WOOD ENTRY STAIRS AND REPLACE WITH A REINFORCED CONCRETE/MASONRY STRUCTURE.
- EXPAND THE LOWER LEVEL BEDROOM TOWARD THE EXISTING ENTRY LANDING.

LATERAL LOADS HAVE BEEN MITIGATED BY CREATING PERFORATED SHEAR WALLS AROUND NEW AND EXISTING WINDOW OPENINGS.



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Date: March 2013 By: SAE Sheet No.: NARR

DESIGN CRITERIA

Design per 2009 IBC as modified by the 2010 OSSC

Vertical Loads

<u>12 psf.....(DL)</u>	Exterior wall DL.....	10 psf
<u>20 psf.....(SL)</u>	Interior wall DL.....	8 psf
32 psf.....(TL - ROOF)		
<u>12 psf.....(DL)</u>		
<u>40 psf.....(LL)</u>		
52 psf.....(TL - FLOOR)		

Wind: (See Attached Analysis)

Based on ASCE 7 (method 2)

Seismic

Site Classification D (assumed)

$$F_a := 1.11 \quad F_v := 1.724$$

$$S_s := 0.974 \quad S_1 := 0.338$$

$$S_{DS} := 0.721 \quad S_{D1} := 0.388$$

$$R := 6.5 \quad (\text{light framed wood shear walls})$$

$$I := 1.0 \quad (\text{Standard Occupancy Structure})$$

$$V_{\text{strength}} := (S_{DS} * I) / R * W = 0.111 * W \quad (\text{Main Lateral System})$$

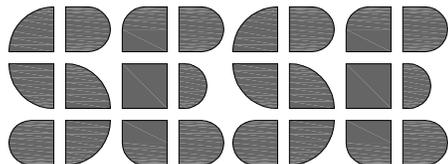
$$V_{\text{stress}} := 0.7 * V_{\text{strength}} = 0.078 * W \quad (\text{Main Lateral System})$$

Structural System

Pre-man. Wood Trusses, Wood framed bearing/shear walls, wood framed diaphragms

Soil Bearing (ASUMED - TO BE VERIFIED BY BUILDING OFFICIAL)

1500 psf Allowable



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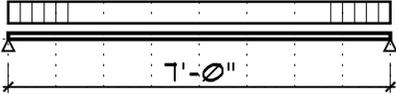
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Heath Residence:
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Date: March 2013 By: SAE Sheet No.: DC

FRAMING CALCULATIONS

(B1) LEDGER BEAM
L6x4x.375

TRIB = 25 FT
DL = 75 PSF
LL = 100 PSF



$$fb = 2,7000 \times 12 / 1.6 = 2025 \text{ ksi}$$

$$b/t = 10.7$$

$$65 / \sqrt{36} = 10.8$$

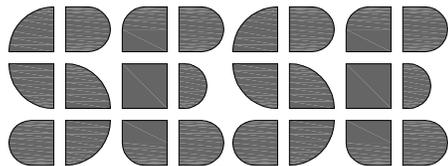
$$Fb = 36 \left(\frac{2}{3}\right) = 24 \text{ ksi} \quad \text{-OK-}$$

$$\Delta PL = 0.07" = L / 1200$$

$$\Delta LL = 0.10" = L / 840$$

$$\Delta TL = 0.17" = L / 494$$

-OK-



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Project: Heath Residence:
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Client: Arciform Proj. No.: 13-103

Date: March 2013 By: SAE Sheet No.: 1

Title :
 Dsgnr:
 Description :

Job #
 Date: 6:22AM, 12 MAR 13

Scope :

Timber Beam & Joist

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Description

Timber Member Information

		Fir Joists	Basement Beam
		2x8	MicroLam: 5.25x7.2
Timber Section			
Beam Width	in	1.500	5.250
Beam Depth	in	7.250	7.250
Le: Unbraced Length	ft	0.00	0.00
Timber Grade		Douglas Fir - Larch, Truss Joist - MacMil	
Fb - Basic Allow	psi	900.0	2,600.0
Fv - Basic Allow	psi	180.0	285.0
Elastic Modulus	ksi	1,600.0	1,900.0
Load Duration Factor		1.000	1.150
Member Type		Sawn	Manuf/Pine
Repetitive Status		Repetitive	No

Center Span Data

Span	ft	7.00	9.00
Dead Load	#/ft	20.00	380.00
Live Load	#/ft	54.00	525.00

Results

Ratio = 0.3333 0.7996

Mmax @ Center	in-k	5.44	109.96
@ X =	ft	3.50	4.50
fb : Actual	psi	413.9	2,390.8
Fb : Allowable	psi	1,242.0	2,990.0
		Bending OK	Bending OK
fv : Actual	psi	29.7	139.9
Fv : Allowable	psi	180.0	327.8
		Shear OK	Shear OK

Reactions

@ Left End	DL	lbs	70.00	1,710.00
	LL	lbs	189.00	2,362.50
	Max. DL+LL	lbs	259.00	4,072.50
@ Right End	DL	lbs	70.00	1,710.00
	LL	lbs	189.00	2,362.50
	Max. DL+LL	lbs	259.00	4,072.50

Deflections

Ratio OK Deflection OK

Center DL Defl	in	-0.014	-0.177
L/Defl Ratio		5,925.6	609.9
Center LL Defl	in	-0.038	-0.245
L/Defl Ratio		2,194.7	441.4
Center Total Defl	in	-0.052	-0.422
Location	ft	3.500	4.500
L/Defl Ratio		1,601.5	256.1

Title :
 Dsgnr:
 Description :
 Scope :

Job #
 Date: 7:55PM, 12 MAR 13

Restrained Retaining Wall Design

Page 1

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Description Full Height Stair Walls

Criteria	Soil Data	Footing Strengths & Dimensions
Retained Height = 6.00 ft	Allow Soil Bearing = 1,500.0 psf	f _c = 3,000 psi
Wall height above soil = 2.75 ft	Equivalent Fluid Pressure Method	F _y = 60,000 psi
Total Wall Height = 8.75 ft	Heel Active Pressure = 45.0	Min. As % = 0.0014
	Toe Active Pressure = 0.0	Toe Width = 0.50 ft
	Passive Pressure = 150.0	Heel Width = 2.00
Top Support Height = 6.00 ft		Total Footing Width = 2.50
Slope Behind Wall = 0.00 : 1	Footing Soil Friction = 0.300	Footing Thickness = 10.00 in
Height of Soil over Toe = 6.00 in	Soil height to ignore for passive pressure = 0.00 in	Key Width = 0.00 in
Soil Density = 110.00 pcf		Key Depth = 0.00 in
		Key Distance from Toe = 0.00 ft
Wind on Stem = 0.0 psf		Cover @ Top = 3.00 in @ Btm. = 3.00 in

Design Summary	Concrete Stem Construction	
Total Bearing Load = 1,954 lbs	Thickness = 6.00 in	F _y = 60,000 psi
...resultant ecc. = 3.06 in	Wall Weight = 72.5 pcf	f _c = 2,500 psi
Soil Pressure @ Toe = 1,259 psf OK	Stem is FIXED to top of footing	
Soil Pressure @ Heel = 304 psf OK		
Allowable = 1,500 psf		
Soil Pressure Less Than Allowable		
ACI Factored @ Toe = 1,763 psf		
ACI Factored @ Heel = 425 psf		
Footing Shear @ Toe = 0.0 psi OK		
Footing Shear @ Heel = 21.1 psi OK		
Allowable = 93.1 psi		
Reaction at Top = 162.0 lbs		
Reaction at Bottom = 888.6 lbs		

Sliding Calcs Slab Resists All Sliding!
 Lateral Sliding Force = 888.6 lbs

Footing Design Results		
	<u>Toe</u>	<u>Heel</u>
Factored Pressure =	1,763	425 psf
Mu' : Upward =	209	0 ft-#
Mu' : Downward =	32	0 ft-#
Mu: Design =	178	635 ft-#
Actual 1-Way Shear =	0.00	21.13 psi
Allow 1-Way Shear =	93.11	93.11 psi

	@ Top Support	Mmax Between Top & Base	@ Base of Wall
Design height	Stem OK = 6.00 ft	Stem OK = 3.33 ft	Stem OK = 0.00 ft
Rebar Size	# 4	# 4	# 4
Rebar Spacing	= 12.00 in	= 12.00 in	= 12.00 in
Rebar Placed at	= Center	= Center	= Center
Rebar Depth 'd'	= 3.00 in	= 3.00 in	= 3.00 in
Design Data			
fb/FB + fa/Fa	= 0.000	= 0.198	= 0.443
Mu.....Actual	= 0.0 ft-#	= 492.6 ft-#	= 1,101.6 ft-#
Mn * Phi.....Allowable	= 2,487.6 ft-#	= 2,487.6 ft-#	= 2,487.6 ft-#
Shear Force @ this height	= 0.0 lbs		= 1,101.6 lbs
Shear.....Actual	= 0.00 psi		= 30.60 psi
Shear.....Allowable	= 85.00 psi		= 85.00 psi
Rebar Lap Required	= 18.72 in	= 18.72 in	
Rebar embedment into footing	=		= 6.00 in

Other Acceptable Sizes & Spacings:

- Toe: None Spec'd -or- Not req'd, Mu < S * Fr
- Heel: None Spec'd -or- Not req'd, Mu < S * Fr
- Key: No key defined -or- No key defined

Title :
Dsgnr:
Description :

Job #
Date: 7:55PM, 12 MAR 13

Scope :

Restrained Retaining Wall Design

Page 2

13-103 heath addition.ecw:Calculations

Description Full Height Stair Walls

Summary of Forces on Footing : Slab RESISTS sliding, stem is FIXED at footing

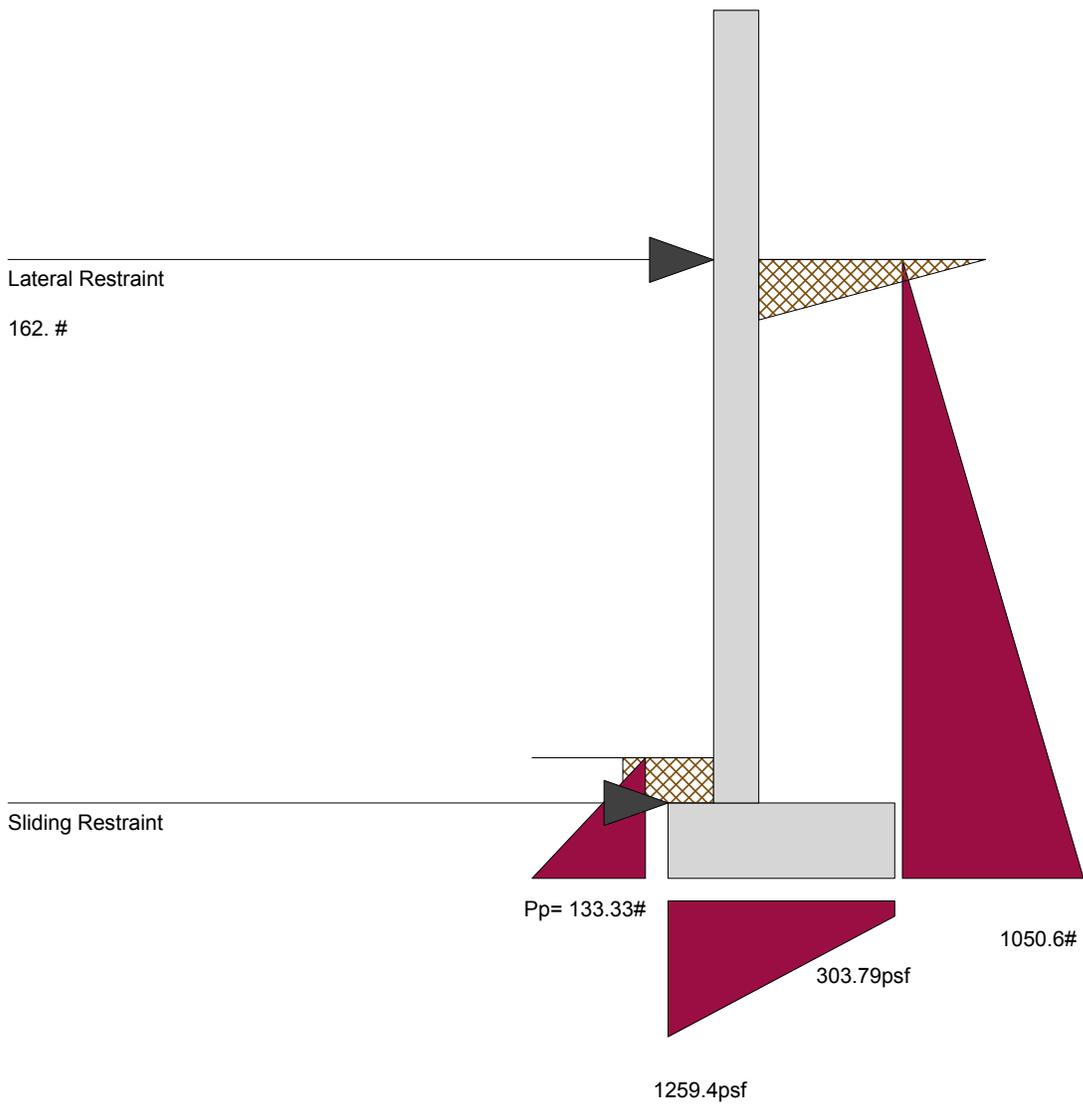
Forces acting on footing for soil pressure

>>> Sliding Forces are restrained by the adjacent slab

Load & Moment Summary For Footing : For Soil Pressure Calcs

Moment @ Top of Footing Applied from Stem	=		-648.0 ft-#
Surcharge Over Heel	=	lbs ft	ft-#
Axial Dead Load on Stem	=	lbs ft	ft-#
Soil Over Toe	=	27.5 lbs 0.25 ft	6.9 ft-#
Surcharge Over Toe	=	lbs ft	ft-#
Stem Weight	=	634.4 lbs 0.75 ft	475.8 ft-#
Soil Over Heel	=	990.0 lbs 1.75 ft	1,732.5 ft-#
Footing Weight	=	302.1 lbs 1.25 ft	377.6 ft-#
Total Vertical Force	=	1,954.0 lbs	Base Moment = 1,944.7 ft-#

Soil Pressure Resulting Moment = 497.7ft-#



Wind Loads for Main Wind Force Resisting System (MWFRS) Using ASCE 7-05 Method 2 for all heights (gable/hipped roofs)

Building Dimensions		V (mph): 95	Cp		N-S wind		E-W wind	
N - S (ft): 30	Exposure B	lw: 1.00	Windward Wall		0.80	1.30	0.80	1.10
E - W (ft): 60			Leeward Wall		-0.50		-0.30	
hm (ft): 20	Kd: 0.85	G: 0.85	Windward Roof		-0.10	0.48	0.07	0.64
Roof Pitch: 4 : 12			Leeward Roof		-0.58		-0.57	
Roof Angle (deg) 18.4	NORTH - SOUTH WIND				EAST - WEST WIND			
qh (psf) 12.3	WALLS		ROOF		WALLS		ROOF	
	LW "-P": -5.2		LW "-P": -6.0		LW "-P": -3.1		LW "-P": -5.9	
Height (ft)	Kz	gz (psf)	WW	TOTAL	WW	TOTAL	WW	TOTAL
			"+" (psf)	"-" (psf)	"+" (psf)	"-" (psf)	"+" (psf)	"-" (psf)
0-15	0.57	11.3	7.7	12.9	-0.9	7.0	7.7	10.8
20	0.62	12.3	8.3	13.5	-1.0	7.0	8.3	11.5
25	0.67	13.1	8.9	14.1	-1.1	7.1	8.9	12.0
30	0.70	13.8	9.4	14.6	-1.1	7.2	9.4	12.5

$$q_z = 0.0256 \times K_z \times K_{zt} \times K_d \times V^2 \times I_w \quad (\text{ASCE Eq. 6-15})$$

$$K_{zt} = 1.0$$

$$P = q(GC_p) - q_i(GC_{pi}) \quad (\text{ASCE Eq. 6-17})$$

(FOR TYPICAL STRUCTURES, INTERNAL COMPONENTS OF WW AND LW PRESSURES CANCEL. THIS ANALYSIS HAS THEREFORE IGNORED THESE COMPONENTS)

WIND VS SEISMIC CHECK:

$$W_{wind} = 12.5 \text{ psf} \times (8 \text{ ft} / 2 + 8 \text{ ft} + 1 \text{ ft} + 8 \text{ ft} / 2) = 212.5 \text{ PLF}$$

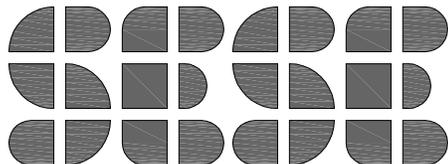
- THEREFORE WIND CONTROLS LATERAL DESIGN -

$$W_{seis} = C_s \times W_p = 0.078 \times 1768 = 138 \text{ PLF}$$

$$C_s = 0.078$$

$$W_p = 12 \text{ psf} \times 62 \text{ ft} \times 2 + 10 \text{ psf} \times 14 \text{ ft} \times 2 = 1768$$

- SEE ATTACHED SHEETS FOR MORE INFORMATION ANALYSIS -



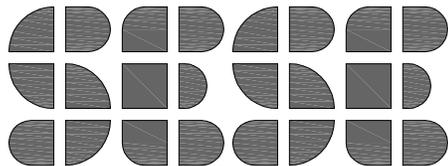
**Shane
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Date: March 2013 By: SAE Sheet No.: L1

1st Floor Walls				
V (#'s):	3200	Wind		
v (plf):	135	1/2" apa w/ 8d @6/12 ncap= 357 plf (wind)		
H' (ft):	12.5			
<u>L (ft)</u>	<u>wd (plf)</u>	<u>Pd (#)</u>	<u>T (#)</u>	See Perf. Analysis
13	200	400	670	See Perf. Analysis
2.75	200	400	1285	See Perf. Analysis
5.25	200	400	1135	See Perf. Analysis
2.67	200	400	1290	See Perf. Analysis
23.67				



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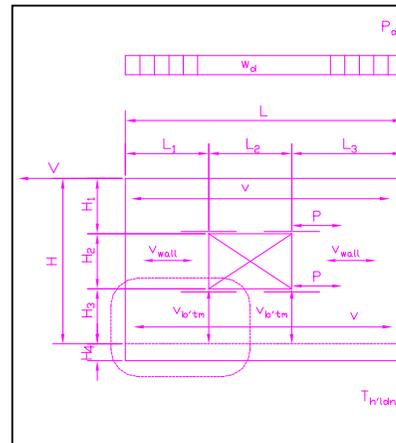
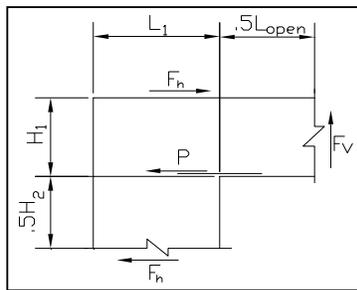
13995 SE MATILDA DR., MILWAUKIE OR, 97267, 503-998-7704. SHANE.EMPEY.PE@GMAIL.COM

Project: Heath Residence: Entry Addition/Remodel
 Client: Arciform Proj. No.: 13-103
 Date: March 2013 By: SAE Sheet No.: L2

Shear Line V1

This analysis uses the force transfer method of designing a perforated shear wall. The free body diagrams shown at right are a generic condition and the input values of L_1 and H_1 should be input as the worst case which would be the smallest dimensions.

V =	1069	lb	Total shear force.
H' =	12	ft	Equiv. Lateral Height
L =	13.75	ft	Total length of wall.
L_1 =	5.25	ft	Wall pier length.
L_2 =	6	ft	Length of opening.
L_3 =	2.5	ft	Wall pier length.
H =	8	ft	Total height of wall.
H_1 =	1.25	ft	Critical section depth.
H_2 =	4	ft	Height of opening.
ω_d =	200	plf	Uniform resisting dead load
P_d =	400	lb	Header resisting dead load



v =	78	plf	$v = \frac{V}{L}$	Shear at top and bottom plates.
v_{wall} =	204	plf	$v_{wall} = \frac{V}{L_{wall}}$	Shear in wall piers.
F_h =	428	lb	$F_h = v(L_1 + 0.5L_{open})$	Horizontal force at critical section.
F_v =	253	lb	$F_v = \frac{F_h(H_1 + .5H_2)}{L_1 + .5L_{open}}$	Vertical force at critical section.
P =	607	lb	$P = \frac{F_v(.5L_{open})}{H_1}$	Critical strap force.
v_{head} =	202	plf	$v_{head} = \frac{F_v}{H_1}$	Shear in panel above opening.

$T_{holddown} = v * H_{h'dn} - .6(\omega_d * L/2 + P_d) = -132$ lb Holdown loads at ends

Strap must be designed for 607 lb force.

Simpson CS20 Tcap= 1,030#

Anchor bolts must be designed for 78 plf shear.

1/2" @48" o/c ncap= 260 plf

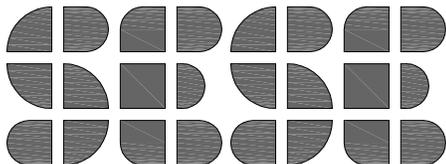
Shearwalls must be designed for 204 plf shear.

1/2" apa w/ 8d @6/12 ncap= 357 plf

Panels above and below the opening must be designed for 202 plf shear.

1/2" apa w/ 8d @6/12 ncap= 357 plf

NO HOLDOWN REQUIRED



Shane
Empey, P.E.
Structural
Engineering

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Project: Heath Residence:
Entry Addition/Remodel

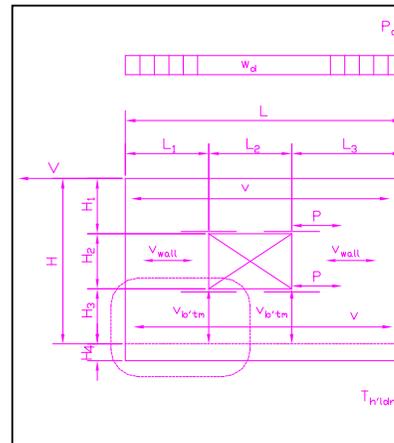
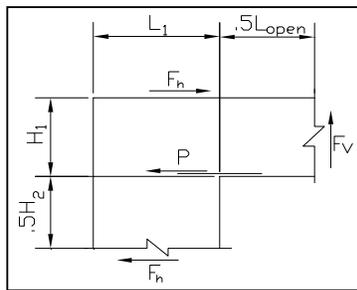
Client: Arciform Proj. No.: 13-103

Date: March 2013 By: SAE Sheet No.: L3

Shear Line V2

This analysis uses the force transfer method of designing a perforated shear wall. The free body diagrams shown at right are a generic condition and the input values of L_1 and H_1 should be input as the worst case which would be the smallest dimensions.

V =	1845	lb	Total shear force.
H' =	12.5	ft	Equiv. Lateral Height
L =	20	ft	Total length of wall.
L_1 =	13	ft	Wall pier length.
L_2 =	4.33	ft	Length of opening.
L_3 =	2.75	ft	Wall pier length.
H =	8	ft	Total height of wall.
H_1 =	1.25	ft	Critical section depth.
H_2 =	5	ft	Height of opening.
ω_d =	200	plf	Uniform resisting dead load
P_d =	400	lb	Header resisting dead load



v =	92	plf	$v = \frac{V}{L}$	Shear at top and bottom plates.
v_{wall} =	142	plf	$v_{wall} = \frac{V}{L_{wall}}$	Shear in wall piers.
F_h =	454	lb	$F_h = v(L_1 + 0.5L_{open})$	Horizontal force at critical section.
F_v =	346	lb	$F_v = \frac{F_h(H_1 + .5H_2)}{L_1 + .5L_{open}}$	Vertical force at critical section.
P =	599	lb	$P = \frac{F_v(.5L_{open})}{H_1}$	Critical strap force.
v_{head} =	277	plf	$v_{head} = \frac{F_v}{H_1}$	Shear in panel above opening.

$T_{holddown} = v * H_{h'dn} - .6(\omega_d * L/2 + P_d) = -287$ lb Holdown loads at ends

Strap must be designed for 599 lb force.

Simpson CS20 Tcap= 1,030#

Anchor bolts must be designed for 92 plf shear.

1/2" @48" o/c ncap= 260 plf

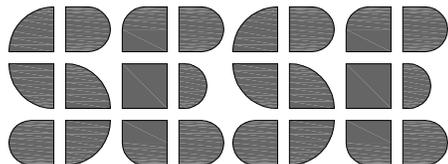
Shearwalls must be designed for 142 plf shear.

1/2" apa w/ 8d @6/12 ncap= 357 plf

Panels above and below the opening must be designed for 277 plf shear.

1/2" apa w/ 8d @6/12 ncap= 357 plf

NO HOLDOWN REQUIRED



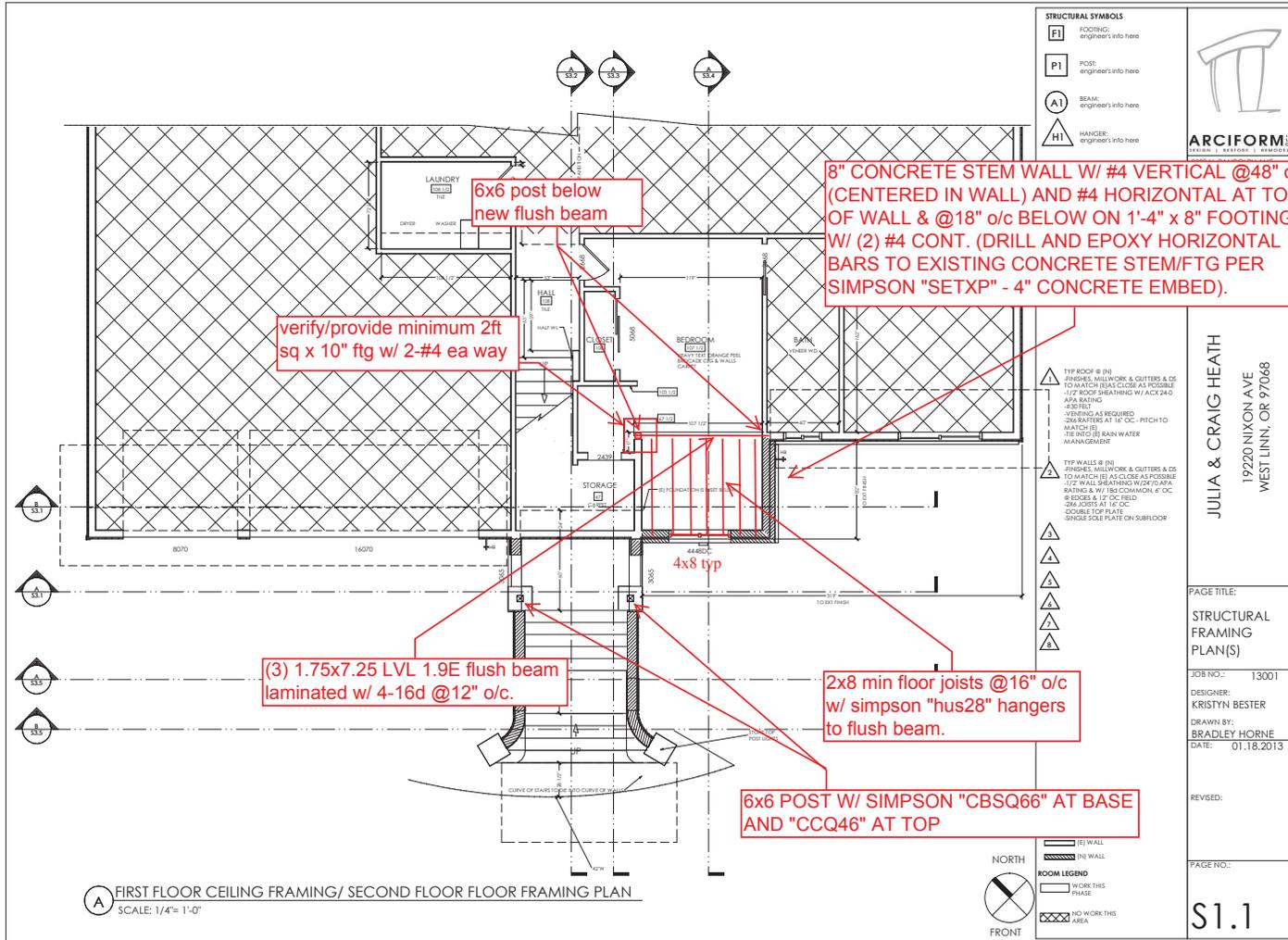
Shane
Empey, P.E.
Structural
Engineering

13995 SE MATILDA DR., MILWAUKIE OR, 97267, 503-998-7704. SHANE.EMPEY.PE@GMAIL.COM

Project: Heath Residence:
Entry Addition/Remodel

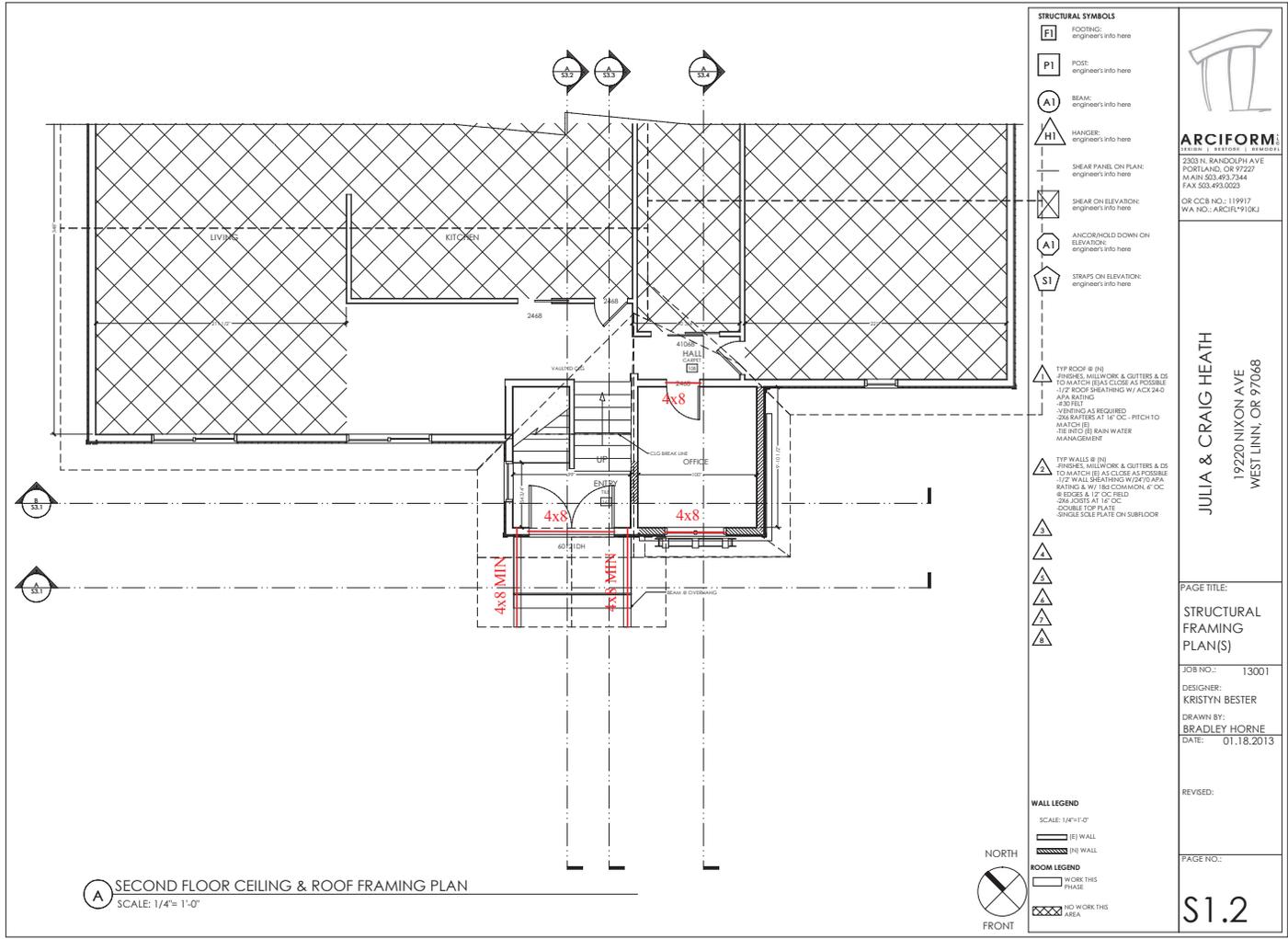
Client: Arciform Proj. No.: 13-103

Date: March 2013 By: SAE Sheet No.: L4



HALF SCALE

PRELIMINARY- NOT FOR CONSTRUCTION



A SECOND FLOOR CEILING & ROOF FRAMING PLAN
SCALE: 1/4"= 1'-0"

HALF SCALE

PRELIMINARY- NOT FOR CONSTRUCTION

- STRUCTURAL SYMBOLS**
- F1** FOOTING:
engineer's info here
 - P1** POST:
engineer's info here
 - A1** BEAM:
engineer's info here
 - H1** HANGER:
engineer's info here
 - SHEAR PANEL ON PLAN:
engineer's info here
 - SHEAR ON ELEVATION:
engineer's info here
 - ANCHOR/HOLD DOWN ON
ELEVATION:
engineer's info here
 - STRAPS ON ELEVATION:
engineer's info here

TYP ROOF @ IN
FINISHES, MILLWORK & CUTTERS & OS
TO MATCH (E) AS CLOSE AS POSSIBLE
1/2" ROOF SHEATHING W/ ACK 24 0
APA RATING
#30 FELT
#18 INS IS REQUIRED
2x6 RAFTERS AT 16" OC - PITCH TO
MATCH (E)
SEE INFO (E) BATH WATER
MANAGEMENT

TYP WALLS @ IN
FINISHES, MILLWORK & CUTTERS & OS
TO MATCH (E) AS CLOSE AS POSSIBLE
1/2" WALL SHEATHING W/ APA
RATING & W/ 180 COMMON, 4" OC
@ EDGES & 12" OC FIELD
2x6 JOISTS AT 16" OC
SCORIE TOP PLATE
SINGLE SCALE PLATE ON SUBFLOOR

- I**
- II**
- III**
- IV**
- V**

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

- (E) WALL
- (I) WALL
- (II) WALL

ROOM LEGEND

- WORK THIS PHASE
- NO WORK THIS AREA





ARCIFORM
2303 N. RAINBOW AVE
PORTLAND, OR 97227
MAIN 503.493.7844
FAX 503.493.0023
OR CCC NO.: 119917
WA NO.: ARCIFL*910KJ

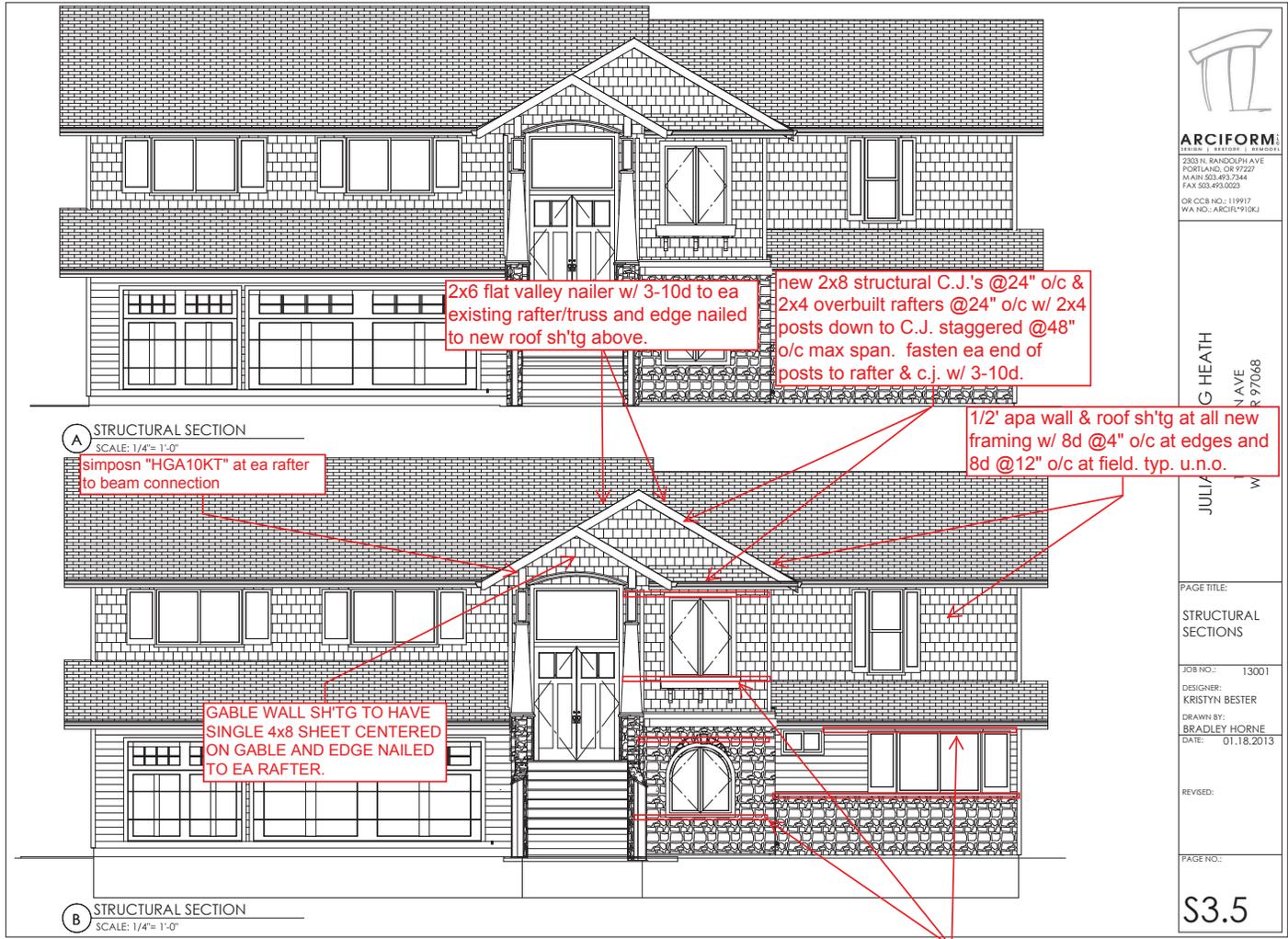
JULIA & CRAIG HEATH
19220 NIXON AVE
WEST LINN, OR 97068

PAGE TITLE:
**STRUCTURAL
FRAMING
PLAN(S)**

JOB NO.: 13001
DESIGNER:
KRISTYN BESTER
DRAWN BY:
BRADLEY HORNE
DATE: 01.18.2013

REVISED:

PAGE NO.:
S1.2



A STRUCTURAL SECTION
SCALE: 1/4" = 1'-0"

simpsn "HGA10KT" at ea rafter to beam connection

2x6 flat valley nailer w/ 3-10d to ea existing rafter/truss and edge nailed to new roof sh'tg above.

new 2x8 structural C.J.'s @24" o/c & 2x4 overbuilt rafters @24" o/c w/ 2x4 posts down to C.J. staggered @48" o/c max span. fasten ea end of posts to rafter & c.j. w/ 3-10d.

1/2' apa wall & roof sh'tg at all new framing w/ 8d @4" o/c at edges and 8d @12" o/c at field. typ. u.n.o.

GABLE WALL SH'TG TO HAVE SINGLE 4x8 SHEET CENTERED ON GABLE AND EDGE NAILED TO EA RAFTER.

B STRUCTURAL SECTION
SCALE: 1/4" = 1'-0"

HALF SCALE

PRELIMINARY- NOT FOR CONSTRUCTION

simpsn "cs20" aligned above and below window openings. Fasten ea end w/ 7-10d to 2x6 blocking and intermediate w/ 10d @6" o/c to header, sill, and 2x6 blocking w/ 8d@6" o/c intermediate.

ARCIFORM
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OR CCB NO.: 119917
WA NO.: ARCIFL*910KJ

G HEATH
N AVE
R 97068
JULY W

PAGE TITLE:
STRUCTURAL SECTIONS

JOB NO.: 13001
DESIGNER:
KRISTYN BESTER
DRAWN BY:
BRADLEY HORNE
DATE: 01.18.2013

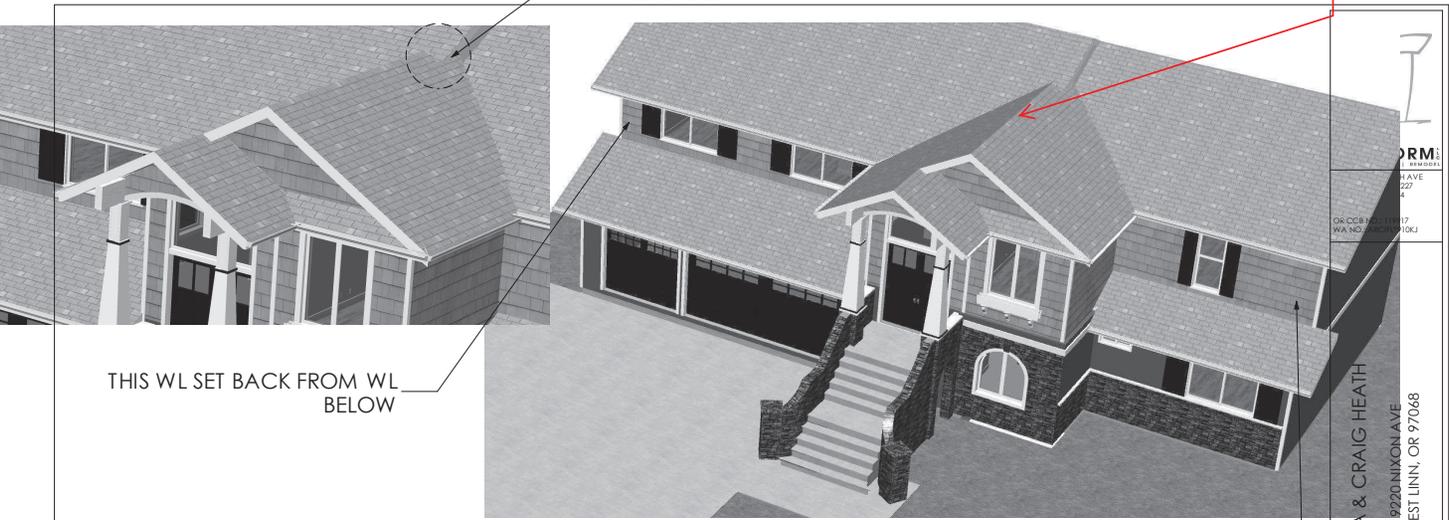
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S3.5

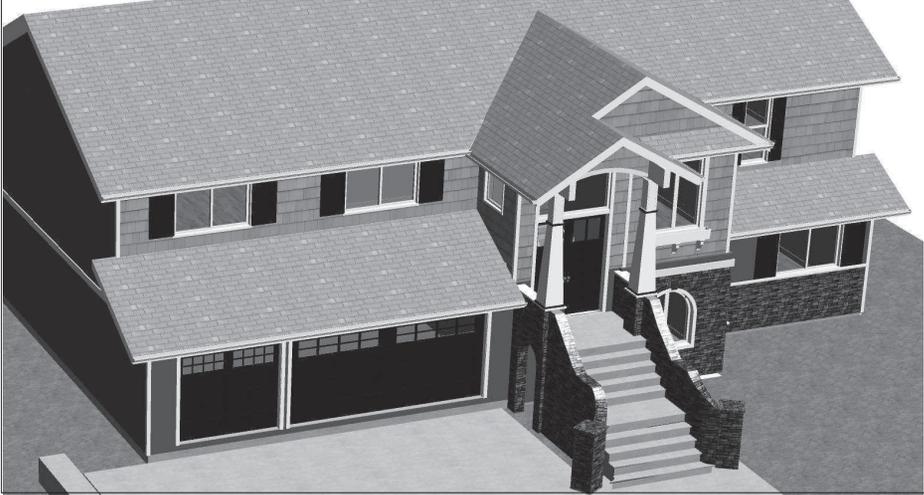
VERIFY/PROVIDE A STRAIGHT RIDGE LINE PER HOME OWNER SITE VISIT COMMENTS/CONCERNS.

CUT OUT



THIS WL SET BACK FROM WL BELOW

THIS WL SET BACK FROM WL BELOW



HALF SCALE

PRELIMINARY- NOT FOR CONSTRUCTION

7

FORM:

DATE: 01/18/2013

OR CC8 N 1117 WA NC 01/18/2013

JULIA & CRAIG HEATH
18920 NIKON AVE
WEST LINN, OR 97068

PAGE TITLE:

JOB NO.: 13001
DESIGNER: KRISTYN BESTER
DRAWN BY: BRADLEY HORNE
DATE: 01.18.2013

REVISED:

PAGE NO.:

Arciform LLC

Heath Residence -19220 Nixon Ave - Small office addition and entry staircase

27.050

- A. Pre application conference held on June 6, 2013
- B. An application has been initiated by the property owner's authorized agent and the application fee has been paid.
- C. An application has been submitted as of Tuesday, June 18, 2013
- D. Please see attached plans
- E. Existing and proposed new addition property elevation is as follows;
 - Top of bottom floor (including crawlspace/enclosure floor) is 43.2 feet
 - Top of next highest floor is 49.1 feet
 - Lowest adjacent grade is 43.2 feetPlease see 27.060, section A
No Water course alteration is proposed
- F. Please refer to attached site plan and maps within this document. The owner proposes to replace a dilapidated entry staircase as well as add an office space. This should not impact the floodplain, please see 27.060 section A.
- G. Refer to above section E
- H. This is a residential project.

27.060

- A. All new construction will maintain conveyance capacity and not increase design flood elevations. The area being affected is less than 80 sq ft and does not impact any grade changes that would affect flood elevations. In addition to this the new floor level will plane out level with the existing floor level which will be elevated 3'-0" and are above the 500 year flood line. In addition to this we are planning on adding flood vents that will be an improvement to the existing residence and allow potential flood water to better recede without cause flood damage. The habitable space above the new crawlspace does not contain plumbing fixtures and is heated from a portion of the existing crawlspace. Therefore no plumbing lines or ducting is required in the new proposed crawlspace. Refer to engineer's letter.
- B. No fill is required. Please refer to line item A.
- C. No excavation to balance a fill is required. Please refer to line item A.
- D. The new finish floor will meet flush with the existing finish floor. Therefore it will be elevated 3'-0" and are above the 500 year flood line, refer to line item A

- E. No temporary fill is required for this small addition, refer to line item A
- F. Please refer to letter from licensed engineer, refer to line item A
- G. Please refer to letter from licensed engineer, refer to line item A
- H. This project does not contain any culverts, bridges, stream crossings, or transportation projects. This is only a small residential office addition that includes entry steps. Refer to line item A
- I. This is only a small residential office addition that includes entry steps. Therefore there will be no creation of vacant buildable land. Refer to line item A
- J. We are in the process of obtaining the appropriate permits through the city of West Linn.

27.070

- A. Yes the structure will be constructed of materials resistant to flood damage. This will be a concrete crawlspace that will meet FEMA requirements. The utility equipment will not be below the BFE. Refer to line item A, CH.060 and letter from the engineer
- B. All equipment will be above the BFE and will not intrude into the crawlspace. . Refer to line item A, CH.060 and letter from the engineer
- C. There will be no plumbing in the new addition. . Refer to line item A, CH.060 and letter from the engineer
- D. There will be no changes to the existing sanitary sewage system since the proposed rooms are only habitable space not containing plumbing or waste lines. . Refer to line item A, CH.060 and letter from the engineer
- E. No waste disposal systems will be affected by this addition. . Refer to line item A, CH.060 and letter from the engineer
- F. All new construction will be anchored per specification of a licensed engineer to prevent floatation, collapse or lateral movement of the structure. . Refer to line item A, CH.060 and letter from the engineer

27.080

- A. Yes the lowest floor will be elevated to at least one foot above the base flood elevation. . Refer to line item A, CH.060 and letter from the engineer
- B. Yes the enclosed crawlspace will have the appropriate number of flood venting that meets or exceeds the requirement of 1 square inch of vent per 1 square foot of enclosed space. Our crawlspace will require a minimum of 2 FEMA certified flood vents. . Refer to line item A, CH.060 and letter from the engineer

1. Refer to section B, a min of 2 flood vents will be installed and will meet FEMA requirements. . Refer to line item A, CH.060 and letter from the engineer

2. Yes, all flood openings shall be no higher than one foot above grade. . Refer to line item A, CH.060 and letter from the engineer

3. Yes, we will use FEMA certified flood vents which allow the entry/exit of flood waters. . Refer to line item A, CH.060 and letter from the engineer

4. Yes, only fully enclosed areas below flood elevations shall only be used for parking, access and limited storage. We will only have a crawlspace foundation. . Refer to line item A, CH.060 and letter from the engineer

5. Yes, service equipment is not allowed below the base flood elevation. However we will not be installing any service equipment since it's existing and doesn't impact the addition. . Refer to line item A, CH.060 and letter from the engineer

6. Yes, all walls, floors and ceiling materials below the base flood elevation will be unfinished and constructed of materials resistant to flood damage. We will only have a vented crawlspace that will be concrete. . Refer to line item A, CH.060 and letter from the engineer

C. We will be using a crawlspace foundation which will meet the following requirements. . Refer to line item A, CH.060 and letter from the engineer

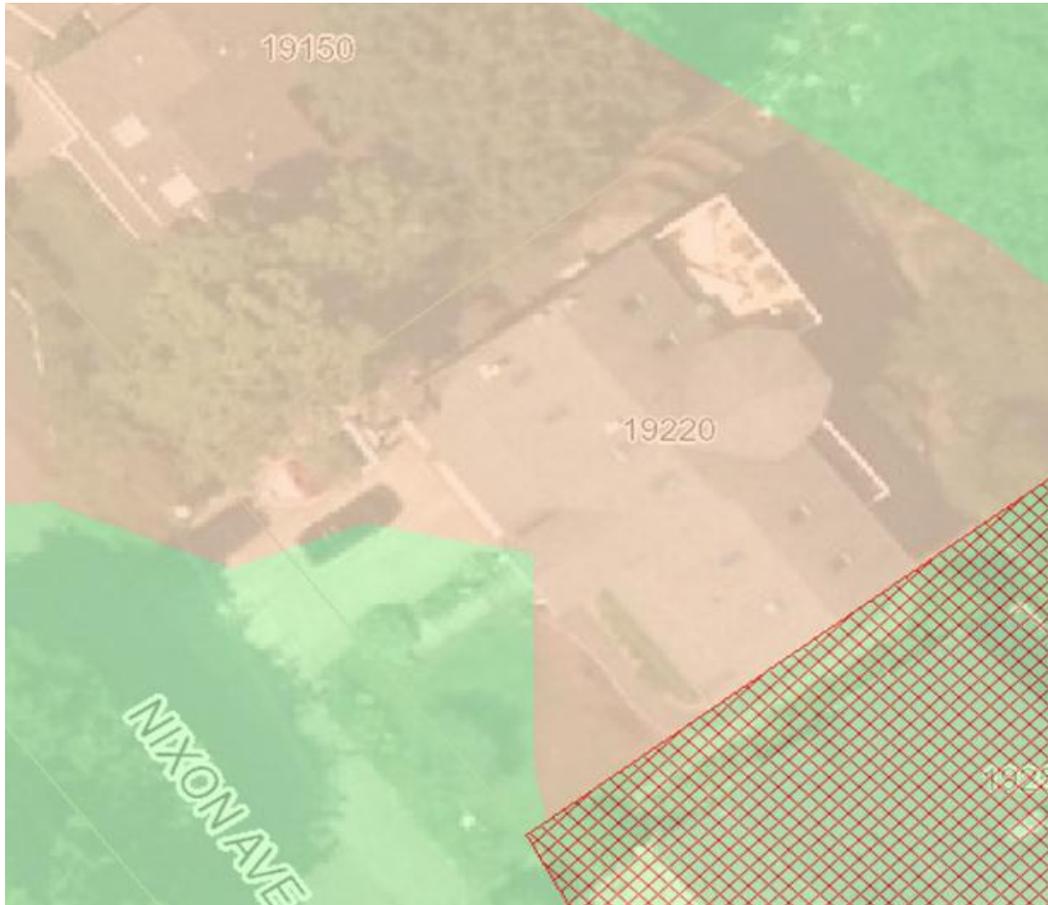
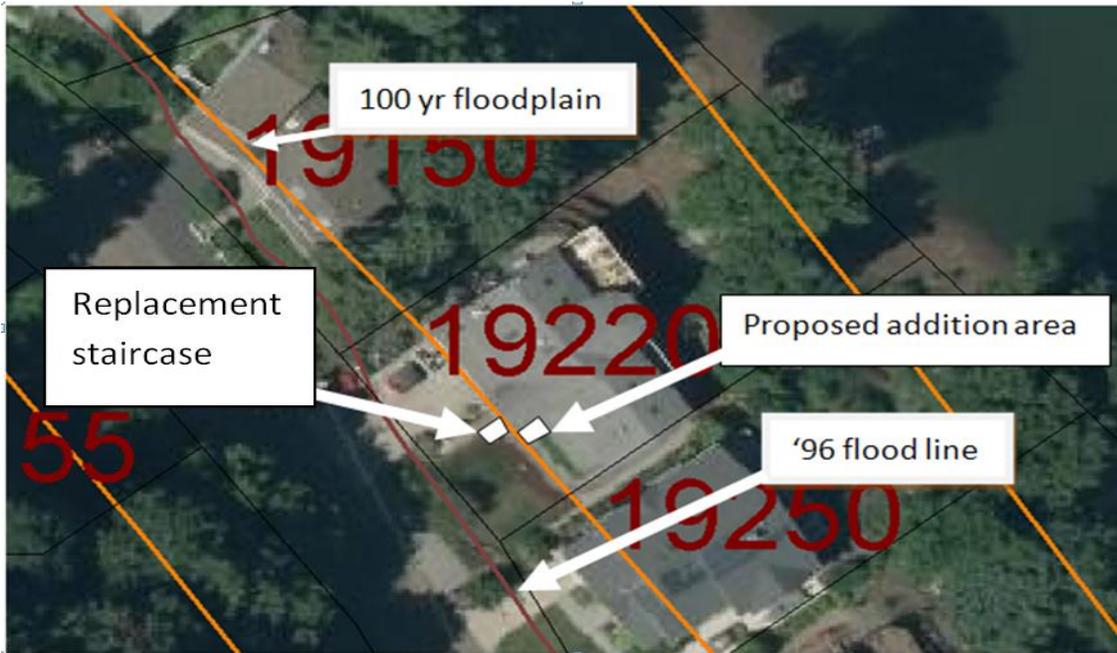
1. The building is subject to the flood-resistant construction provisions of the Oregon residential specialty code. The addition will meet these requirements. . Refer to line item A, CH.060 and letter from the engineer

2. The addition is designed by a licensed contractor and by a licensed engineer. . Refer to line item A, CH.060 and letter from the engineer

3. The addition will be properly designed and anchored to resist flotation, collapse, and lateral movement of the structure resulting from hydrodynamic and hydrostatic loads, including the effects of buoyancy. The will be done by a licensed engineer and installed to his specifications. . Refer to line item A, CH.060 and letter from the engineer

4. We will install a minimum of 2 FEMA approved flood vent openings on at least two sides that will equalize hydrostatic pressures by allowing for the automatic entry and exit of floodwaters. The total area of the flood vent openings will be no less than one square inch for each square foot of enclosed area. The bottom of each flood vent opening can be no more than one foot above the lowest adjacent exterior grade. . Refer to line item A, CH.060 and letter from the engineer

5. Any and all portions of the building below the BFE will be constructed with material resistant to flood damage. This will be a concrete foundation for the crawlspace. . Refer to line item A, CH.060 and letter from the engineer



High HCA (Green) extends over the exempted stairway



SITE & VICINITY MAP
NO SCALE

PROPERTY INFORMATION
 COUNTY: CLACKAMAS
 PROPERTY ID: C16-5430
 ALT. ACCOUNT: 371305
 MAP #: 21E24AC tax lot 1700
 LEGAL DESCRIPTION: Kenhorpe Tracts (unrecorded) 1940



PERSPECTIVE
NO SCALE - CONCEPTUAL ONLY

HEATH RESIDENCE

SCOPE
OFFICE ADDITION & ENTRY REMODEL

DRAWING INDEX

- CS COVER SHEET
- A1.0 SITE PLAN
- A1.1 (E) FIRST FLOOR PLAN
- A1.2 (E) SECOND FLOOR PLAN
- A2.1 (N) FIRST FLOOR PLAN & MEP PLAN
- A2.2 (N) SECOND FLOOR PLAN & MEP PLAN
- A3.1 EXTERIOR ELEVATION & PERSPECTIVES
- A3.2 EXTERIOR ELEVATIONS
- A4.1 DETAILS - see Spreads for struc info
- S1.0 FOUNDATION & FIRST FLOOR FRAMING PLAN
- S1.1 FIRST FLOOR CEILING FRAMING/SECOND FLOOR FLOOR FRAMING PLAN
- S1.2 SECOND FLOOR CEILING & ROOF FRAMING PLAN
- S3.1 STRUCTURAL SECTION, PERSPECTIVE & DETAIL
- S3.2 STRUCTURAL SECTION
- S3.3 STRUCTURAL SECTION & DETAILS

CONDITIONS

CONTRACTOR MUST SEE THAT ALL WORKS OF SAID BUILDING ARE PERFORMED IN A THOROUGH AND SUBSTANTIAL MANNER BY COMPETENT TRADESPEOPLE, AND MUST FURNISH ALL MATERIALS TO THE BEST OF THEIR RESPECTIVE KINDS, LABOR, IMPLEMENTS ETC., IF NOT OTHERWISE SPECIFIED.

INTERPRETATION OF DRAWINGS

FOR THE ARRANGEMENT OF FLOORS, GENERAL FINISH AND MEASUREMENTS, REFERENCE MUST BE MADE TO THE DRAWINGS, VERIFY DIMENSIONS AND EXISTING CONDITIONS, AND NOTIFY THE DESIGNER OR ENGINEER OF ANY DISCREPANCIES BEFORE PROCEEDING, THE CONTRACTOR IS RESPONSIBLE FOR SAFE CONDITIONS AT THE JOB SITE, AND THE TEMPORARY SUPPORT OF THE BUILDING PRIOR TO THE COMPLETION OF THE VERTICAL AND LATERAL LOAD SYSTEMS, ALL WORK SHALL CONFORM TO THE LATEST EDITIONS OF THE OREGON RESIDENTIAL SPECIALTY CODE.

IN PLANS AND PROPOSED ELEVATIONS, DIMENSIONS ARE FROM FINISH TO FINISH.

MEP

LICENSED TRADE PROFESSIONALS TO PROVIDE & INSTALL MEP TO MEET CODE REQUIREMENTS.

VERIFY & PROVIDE MEP REQUIREMENTS FOR ALL FIXTURES AS SPECIFIED BY MANUFACTURER.

LOCATION OF (E) FRAMING MEMBERS MAY REQUIRE ALTERING EXACT LOCATIONS OF FIXTURES. VERIFY W/ DESIGNER AS NEC.

SEE INTERIOR ELEVATIONS FOR LOCATIONS OF VENTS, FIXTURES, RECEPTACLES & SWITCHES.

SEE SPECS FOR COLORS & FINISHES OF VENTS, FIXTURES, RECEPTACLES, SWITCHES & COVER PLATES.

WINDOWS & DOORS

STANDARD WINDOW & DOOR MEASUREMENTS SHOWN ON PLANS ARE READ AS FOLLOWS:

36x8 = 3'-0" WIDE X 4'-8" HIGH

40x4 = 4'-0" WIDE X 2'-4" HIGH

DOOR SIZE INDICATES DOOR PANEL DIMENSIONS.

WINDOW SIZE INDICATES CASING OPENING AT EXISTING - SEE WINDOW MANUFACTURERS SPECIFICATIONS AT NEW

UNO, CENTER BETWEEN ADJACENT WALLS.

ENERGY CODE

MAX. ALLOWABLE WINDOW AREA NO LIMIT

WINDOW CLASS U=0.35

DOOR OTHER THAN MAIN ENTRY U=0.20

MAIN ENTRY DOOR - 24 S.F. MAX U=0.40

EXTERIOR WALL INSULATION FOR (N) WALL R 21

BASEMENT WALL INSULATION R 15

FLAT CEILING INSULATION R 38

V.AULTED CEILING INSULATION R 38

FLOOR INSULATION R 30

FORCED AIR DUCT INSULATION R 8

WOODWORK

WHEN NOT SPECIFIED ELSEWHERE, ALL WOODWORK SHALL BE IN ACCORDANCE WITH OR BETTER THAN THE AWI (ARCHITECTURAL WOODWORK INSTITUTE) CUSTOM QUALITY STANDARD.

CABINET AND CARPENTRY DIMENSIONS ARE APPROXIMATE ONLY.

TILE

WHEN NOT SPECIFIED ELSEWHERE, ALL TILE WORK SHALL CONFORM TO OR EXCEED THE TILE COUNCIL OF AMERICA STANDARDS.

TILE LAYOUT AND DETAILS ARE TO BE USED AS A GUIDE ONLY.

WOOD

LUMBER GRADES SHALL BE AS FOLLOWS, EXCEPT AS NOTED ON DRAWINGS:

JOIST, RAFTERS & 4 INCH NOMINAL BEAMS #2 GRADE DOUGLAS FIR

POSTS & 4 INCH NOMINAL BEAMS #1 GRADE DOUGLAS FIR

2x4 FRAMING & STUDS STUD GRADE DOUGLAS FIR

2x6 FRAMING & LARGER STUDS #2 GRADE DOUGLAS FIR

BUCKS, BLOCKING & BRIDGING #3 GRADE DOUGLAS FIR

PLATES & SILLS ON CONCRETE PT GROUND CONTACT DOUGLAS FIR

2x6 DECKING COMM. GRADE DOUGLAS FIR OR HEM-FIR

PROVIDE SOLID BLOCKING FOR JOISTS AND RAFTERS AT ALL BEARING WALLS AND BEAMS.

PROVIDE BRIDGING AND FIRE STOPPING AS REQUIRED BY CODE.

ROOF, WALL AND FLOOR SHEATHING SHALL BE APA RATED SHEATHING FOR EXPOSURE OR CDX OR EQUIVALENT ORIENTED STRAND BOARD WITH EXTERIOR GLUE. SHEAR WALL SHEATHING SHALL BE INSTALLED WITH JOINTS BLOCKED UNLESS NOTED OTHERWISE.

USE EXTERIOR TYPE PLYWOOD FOR EXPOSED LOCATIONS SUCH AS SOFFITS.

NAIL ALL MEMBERS WITH MINIMUM NAILING TO CONFORM TO TABLE R602.3(1) OF THE OREGON SPECIALTY RESIDENTIAL CODE AND INCREASE WHERE INDICATED, FASTENERS AND HANGERS NOTED ON THE DRAWINGS ARE MODEL NUMBERS OF "SIMPSON STRONG-TIE COMPANY, INC." AND MAY BE REPLACED WITH EQUIVALENT MODELS.

INSTALL ALL CONNECTORS IN ACCORDANCE WITH THE MANUFACTURERS RECOMMENDATIONS WITH NAILING IN ALL AVAILABLE HOLES.

CUTTING OR NOTCHING OF BEAMS, JOISTS, RAFTERS, AND COLUMNS NOT ALLOWED WITHOUT PRIOR APPROVAL. JOISTS AND RAFTERS MAY HAVE A CIRCULAR HOLE NOT EXCEEDING 1/3 OF DEPTH DRILLED AT CENTER OF MEMBER. STUDS IN BEARING WALLS MAY BE NOTCHED NOT EXCEEDING 25% OF DEPTH AT TOP AND BOTTOM 1/3 OF HEIGHT OR MAY HAVE A CIRCULAR HOLE NOT EXCEEDING 1/3 OF MEMBER DEPTH DRILLED AT CENTER AT ANY HEIGHT.

CONTRACTOR TO PROVIDE SIGNED LETTER STATING COMPLIANCE WITH ORSC SECTION R318.2 (FRAMING LUMBER MOISTURE CONTENT - NOT MORE THAN 19% DRY WEIGHT)

FOOTINGS & CONCRETE

FOOTINGS SHALL BEAR ON FIRM UNDISTURBED SOIL OR PROPERLY COMPACTED ENGINEERED FILL PLACED OVER PROPERLY PREPARED SUB-GRADES. THE BEARING HORIZON OF FOOTINGS SHALL BE LOCATED 18 INCHES MINIMUM BELOW THE TOP OF THE INTERIOR FLOOR SLABS OR 18 INCHES BELOW ADJACENT EXTERIOR GRADE.

THE ACI STANDARD SPECIFICATION FOR STRUCTURAL CONCRETE FOR BUILDINGS ACI-301 SHALL BE FOLLOWED FOR ALL ITEMS NOT SPECIFICALLY COVERED ON THE DRAWINGS AND SPECIFICATIONS.

MINIMUM COMPRESSIVE STRENGTH OF CONCRETE SHALL BE: 3500 PSI FOR CONCRETE SLABS ON GRADE 3000 PSI FOR WALLS, FOOTINGS AND OTHER CONCRETE

MAXIMUM SLUMP SHALL BE 3 1/2" INCHES FOR SLABS ON GRADE AND 4 INCHES FOR OTHER CONCRETE. PROVIDE 5% AIR ENTRAINMENT FOR CONCRETE EXPOSED TO EXTERIOR CONDITIONS.

PROVIDE CONTROL JOINTS FOR CONCRETE SLABS ON GRADE IN ACCORD WITH DETAILS AND SPACING SHOWN ON DRAWINGS. WHERE SPACING INFORMATION IS LACKING, SPACE JOINTS AT A MAXIMUM OF 20 FEET IN EACH DIRECTION.

CONCRETE HANDLING, PLACEMENT AND CURING SHALL BE IN ACCORDANCE WITH THE SPECIFICATIONS OF ACI-301 IF NOT OTHERWISE NOTED.

STANDARD ABBREVIATIONS LIST

- 1ST FIRST
- 2ND SECOND
- 3RD THIRD
- 4TH FOURTH
- ADJ ADJUTABLE
- ADJC ADJACENT
- AF ABOVE FINISHED FLOOR
- AFG ABOVE FINISHED GRADE
- APPROX APPROXIMATELY
- AS ADJUSTABLE SHELVES
- ASB ASBESTOS
- BD BOARD
- BM BEAM
- BTM BOTTOM
- BTWN BETWEEN
- CAB CABINET
- CL CENTER LINE
- CLG CEILING
- CLR CLEAR
- CLST CLOSET
- CMU CONCRETE MASONRY UNIT
- COL COLUMN
- CONC CONCRETE
- CONST CONSTRUCTION
- CPT CARPET
- CT CERAMIC TILE
- D DEEP / DEPTH
- DBL DOUBLE
- DIA DIAMETER
- DIM DIMENSION
- DR DOOR
- DRW DRAWER
- DS DOWN SPOUT
- E EXISTING
- EA EACH
- EJ EXPANSION JOINT
- ELEC ELECTRICAL
- ELEV ELEVATION
- EQ EQUAL
- EQUIP EQUIPMENT
- EXT EXTERIOR
- F FIXTURE
- FD FLOOR DRAIN
- FDN FOUNDATION
- FF FACE FRAME
- FN FINISH
- FLR FLOOR
- FLUOR FLUORESCENT
- FRM FRAME
- FS FIXED SHELVES
- FT FOOT / FEET
- FTG FOOTING
- GEN GENERAL
- GL GLASS
- GLB GLULAM BEAM
- GRT GROUT
- GYPB GYPSUM BOARD
- H HIGH
- HDWD HARDWOOD
- HR HANDRAIL
- HT HEIGHT
- HW HARDWARE
- INSUL INSULATION
- INT INTERIOR
- JB JOINT
- JST JOINT
- LAM LAMINATE
- LAV LAVATORY
- LN UNCLEM
- LOC LOCATION/LOCATE
- LVL LAM VENEER LUMBER (BM)
- MANUF MANUFACTURER
- MAX MAXIMUM
- MEP MECH, ELEC, PLG
- MLDG MOLDING
- MW MILLWORK
- (N) NEW
- NEC NECESSARY
- NTS NOT TO SCALE
- OC ON CENTER
- OH OVERHEAD
- OPG OPENING
- PL PLATE
- PLAS PLASTER
- PLBG PLUMBING
- PLYWD PLYWOOD
- PO PULL OUT
- PORC PORCELAIN
- PST PARALLEL STRAND LUMBER (BM)
- PT PRESSURE TREATED
- R RISER
- REC RECESSED
- RET RETAINING
- RM ROOM
- RO ROUGH OPENING
- ROD REQUIRED
- SCHED SCHEDULE
- SF SQUARE FOOTAGE
- SHIT SHEET
- ST STONE
- STD STANDARD
- STRUCT STRUCTURAL
- SUSP SUSPENDED
- T TREADS
- T&G TONGUE & GROOVE TO BE DETERMINED
- TBD TO BE DETERMINED
- TP TOILET PAPER
- TYP TYPICAL
- UNO UNLESS NOTED OTHERWISE
- VCT VINYL COMPOSITION TILE
- VIF VERIFY IN FIELD
- W WIDE / WIDTH
- WC WATER CLOSET
- WD WOOD
- WIN WINDOW
- WL WALL
- WPF WATERPROOF



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PAGE TITLE:

COVER SHEET

JOB NO.: 13001

DESIGNER:
KRISTYN BESTER

DRAWN BY:
BRADLEY HORNE

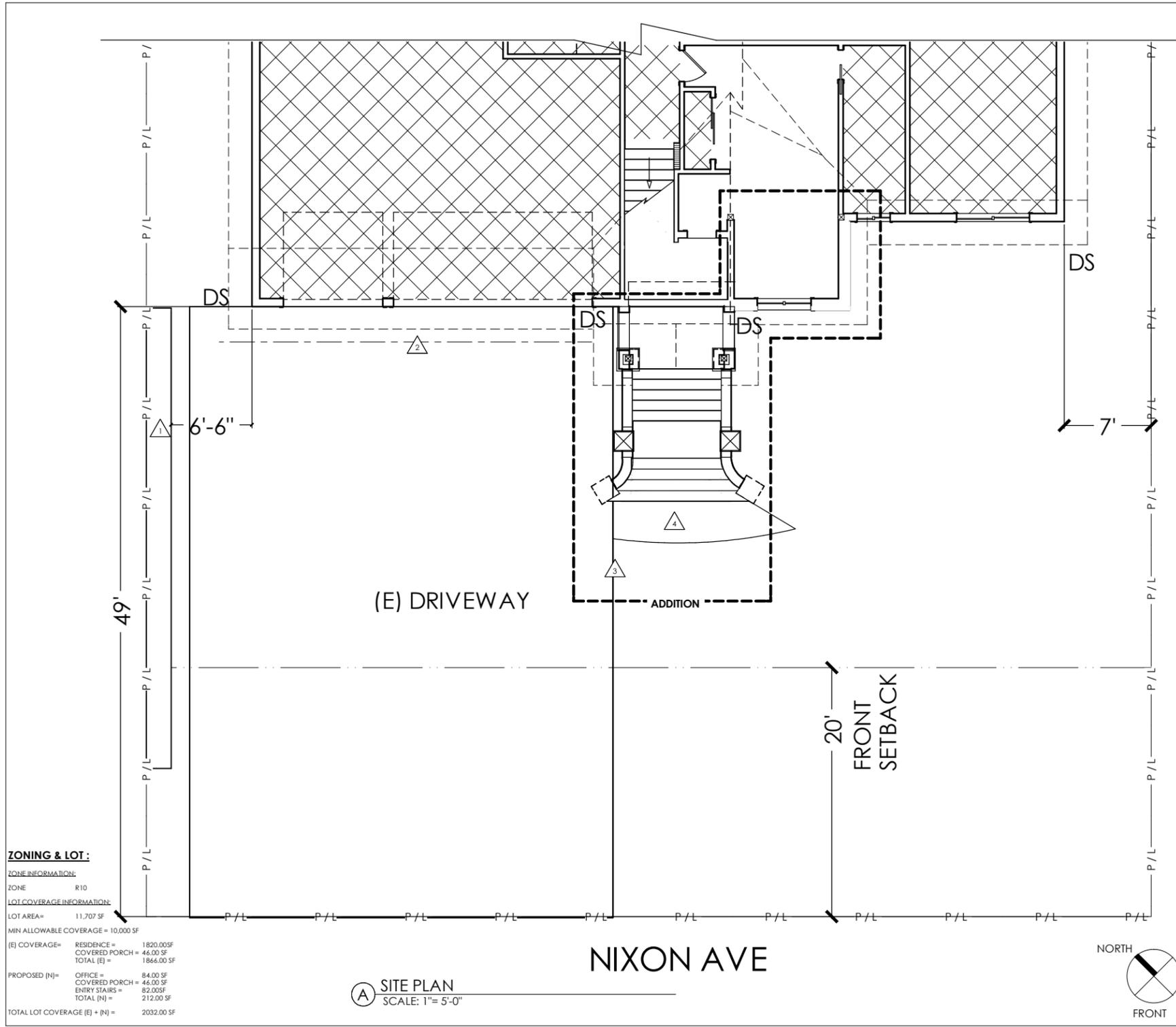
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CS

HALF SCALE



ZONING & LOT:
 ZONE INFORMATION:
 ZONE R10
 LOT COVERAGE INFORMATION:
 LOT AREA = 11,707 SF
 MIN ALLOWABLE COVERAGE = 10,000 SF
 (E) COVERAGE = RESIDENCE = 1820.00 SF
 COVERED PORCH = 46.00 SF
 TOTAL (E) = 1866.00 SF
 PROPOSED (N) = OFFICE = 84.00 SF
 COVERED PORCH = 46.00 SF
 ENTRY STAIRS = 82.00 SF
 TOTAL (N) = 212.00 SF
 TOTAL LOT COVERAGE (E) + (N) = 2032.00 SF

(A) SITE PLAN
 SCALE: 1" = 5'-0"

HALF SCALE

- NOTES**
 ALL DIMENSIONS ARE FROM FINISH TO FINISH UNO.
- 1 (E) RETAINING WALL
 - 2 (E) FRENCH DRAIN
 - 3 EDGE OF (E) DRIVEWAY
 - 4 (N) SLAB



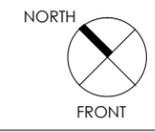
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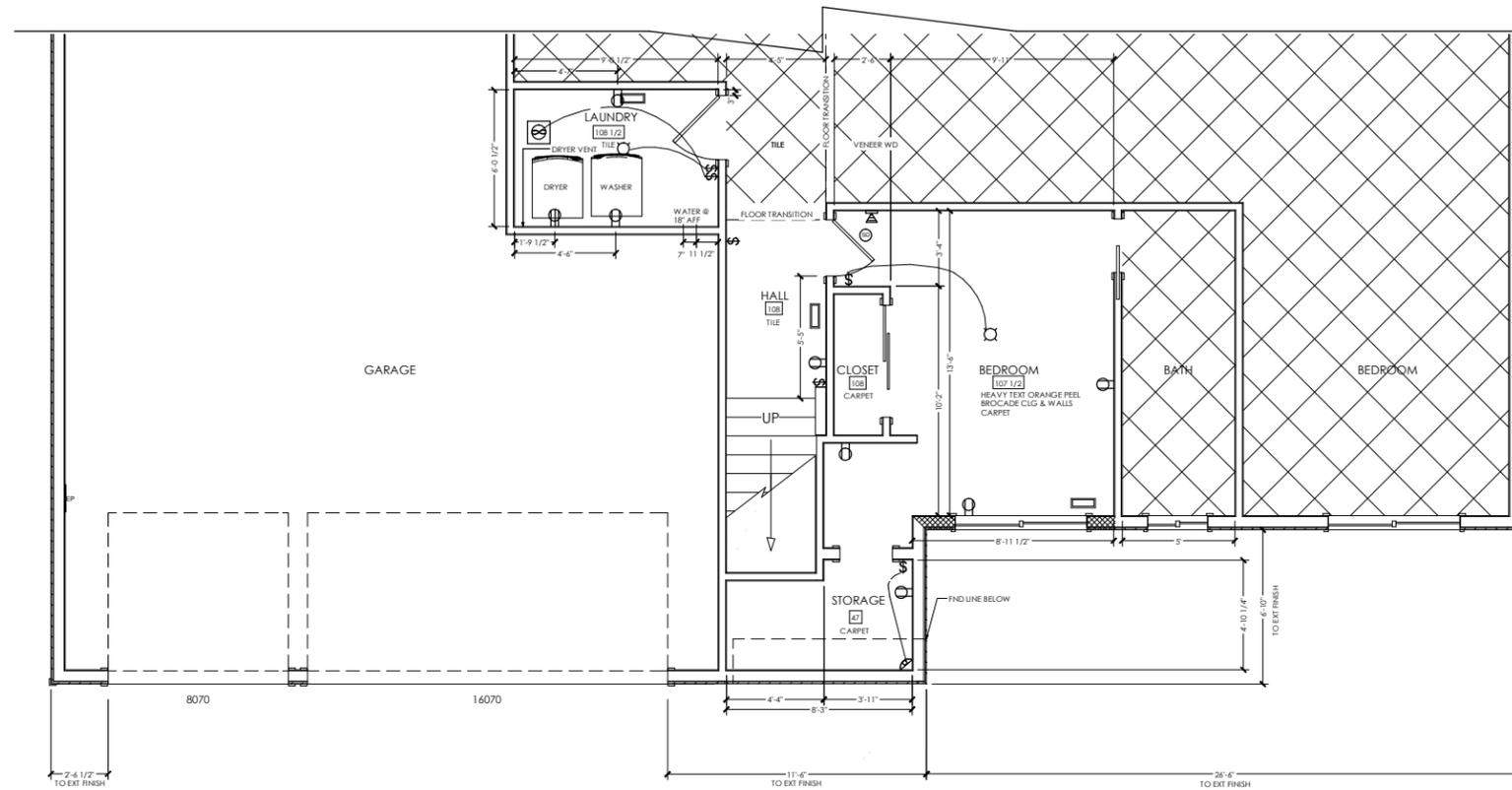
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(A) (E) FIRST FLOOR PLAN
SCALE: 1/4" = 1'-0"

HALF SCALE

NOTES
ALL DIMENSIONS ARE FROM FINISH TO FINISH UNO.



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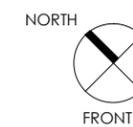
WALL LEGEND

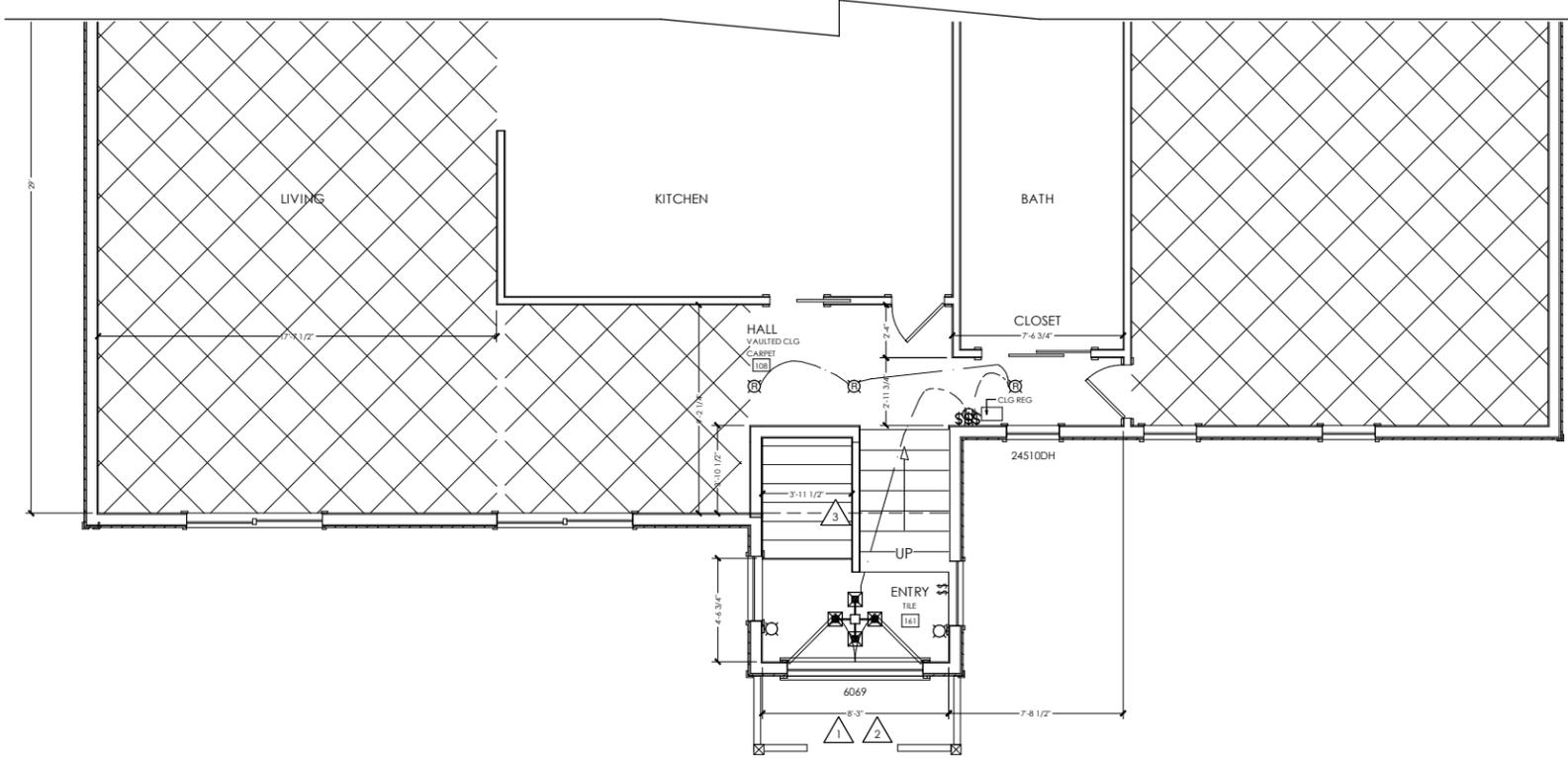
SCALE: 1/4"=1'-0"

- (E) WALL
- DEMO WALL

ROOM LEGEND

- WORK THIS PHASE
- NO WORK THIS AREA





- NOTES**
ALL DIMENSIONS ARE FROM FINISH TO FINISH UNO.
- 1 ARCIFORM TO DEMO (E) DECK. CLIENT WILL DEMO (E) STAIRS; NOT AS DRAWN
 - 2 EXT DECK @ 84" ABOVE GRADE
 - 3 CEILING BREAK LINE



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DOORS & WINDOWS

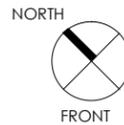
- 100 DOOR
- A1 WINDOW

WALL LEGEND

- SCALE: 1/4"=1'-0"
- (E) WALL
 - DEM O WALL

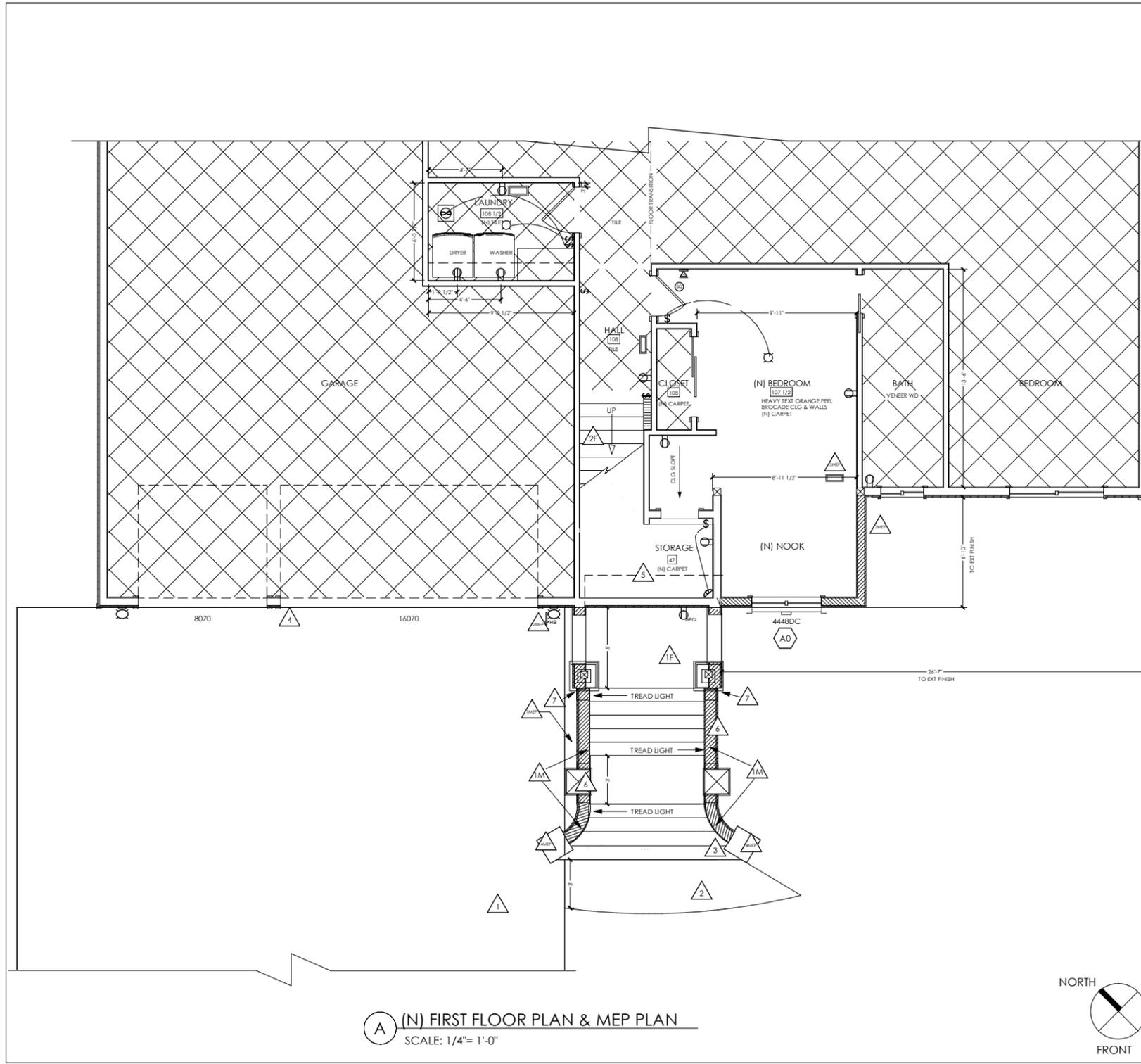
ROOM LEGEND

- WORK THIS PHASE
- NO WORK THIS AREA



(E) SECOND FLOOR PLAN
SCALE: 1/4"= 1'-0"

HALF SCALE



(N) FIRST FLOOR PLAN & MEP PLAN
SCALE: 1/4" = 1'-0"

HALF SCALE

- GENERAL NOTES**
- ALL DIMENSIONS ARE FROM FINISH TO FINISH, UNO
SEE ENLARGED PLANS & INT ELEV FOR MORE INFO
- INSULATE EXT WALLS WHERE ACCESSIBLE
- 1 (E) DRIVEWAY
 - 2 CONFIRM FINAL SHAPE/ SIZE OF (N) SLAB W/ CLIENT ON SITE
 - 3 (N) STAIRS TO TERMINATE INTO CURVED WALL & (N) NEWEL POSTS
 - 4 (N) GARAGE DOOR SUPPLIED & INSTALLED BY CLIENT
 - 5 FLOOR CANTILEVERS OVER (E) FOUNDATION
 - 6 SEE ELEVATIONS & S-PAGES FOR WALL CONSTRUCTION & COLUMN DETAILS
 - 7 5" REVEAL
- MILLWORK**
- MATCH ADJ/C PROFILES AS CLOSELY AS POSSIBLE @ (N)
- 1M INSIDE EDGE OF (N) HANDRAIL TO ALIGN W/ FACE OF STAIR WALLS; SEE ELEVATIONS FOR DETAILS
- FINISHES**
- MATCH ADJ WALL & CEILING SURFACES @ (N) & PATCHED AREAS
- SEE EXT ELEVATIONS FOR (N) STONE VENEER APPLICATIONS
- (N) CARPET & INSTALL IS BY CLIENT
- 1F CONCRETE AT UNDERSIDE OF STAIRS; NO ADD'L CLG FINISH
 - 2F (N) BAMBOO WOOD TREADS & RISERS
- MEP**
- ADDRESS HVAC AS NEC FOR REMODEL ONLY
- UPDATE ELEC AND PLBG AS NEC FOR REMODEL ONLY
- 1M COORDINATE W/ CLIENT, WHO WILL RUN (E) SPRINKLER SYSTEM TO THIS LOC
 - 2M (N) HOSE BIBB LOC, IF POSS
 - 3M (N) FLOOR REGISTER LOC TO BE CONFIRMED W/ CLIENT ON SITE
 - 4M (N) POST LIGHT; NOT AS DRAWN
- MEP LEGEND**
- RECESSED LIGHT
 - CEILING LIGHT
 - SCONCE
 - SWITCH
 - OUTLET
 - WL & FL REG
 - EXHAUST FAN
 - SMOKE DETECTOR
 - INTERCOM
 - HOSE BIB
- DOORS & WINDOWS**
- 100 DOOR
 - A1 WINDOW
- WALL LEGEND**
- SCALE: 1/4" = 1'-0"
- (E) WALL
 - (N) WALL
 - (E) HALF WL
- ROOM LEGEND**
- WORK THIS PHASE
 - NO WORK THIS AREA



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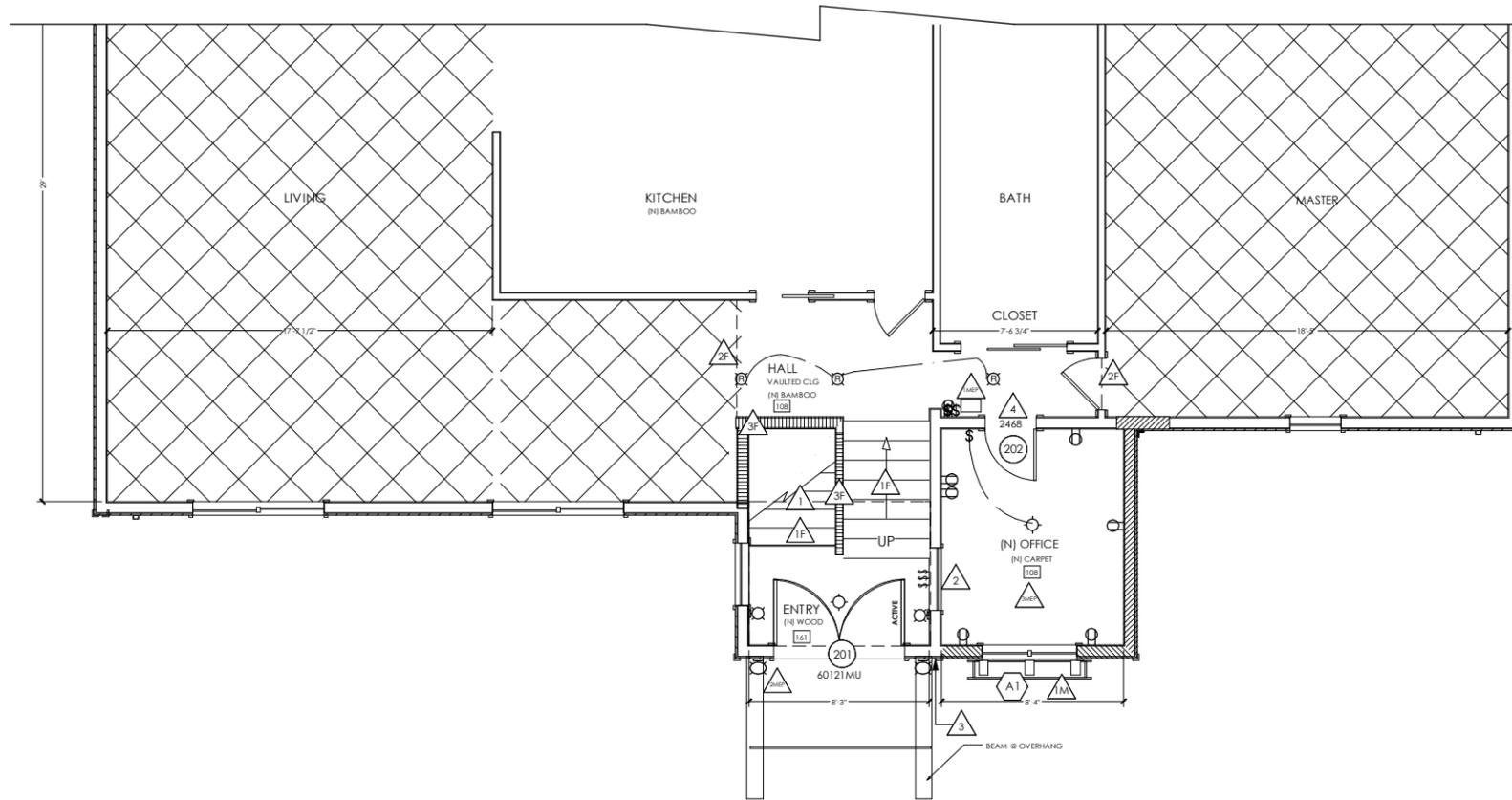
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(N) FIRST FLOOR PLAN & MEP PLAN

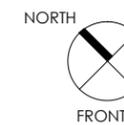
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(N) SECOND FLOOR PLAN & MEP PLAN
SCALE: 1/4" = 1'-0"

HALF SCALE



GENERAL NOTES
ALL DIMENSIONS ARE FROM FINISH TO FINISH, UNO
SEE ENLARGED PLANS & INT ELEV FOR MORE INFO
INSULATE EXT WALLS WHERE ACCESSIBLE

- 1 CEILING BREAK LINE
- 2 (E) WINDOW TO REMAIN
- 3 EXT WL SURFACE TO ALIGN
- 4 (N) DOOR @ (E) WIN OPENING

MILLWORK
MATCH ADJ.C PROFILES AS CLOSELY AS POSSIBLE @ (N)

(N) FLOWER BOX. SEE ELEVATIONS FOR MORE INFO

FINISHES
MATCH ADJ.C WALL & CEILING SURFACES @ (N) & PATCHED AREAS

(N) BAMBOO FLOOR IN: KITCHEN, DINING, PANTRY, HALL & POWDER ROOM (NOT AS DRAWN)

(N) CARPET & INSTALL IS BY CLIENT

(N) BAMBOO TREADS & RISERS

(N) FLOORING TRANSITION, AS FLUSH AS POSSIBLE

(N) PAINT WOOD CAP @ (E) HALF WALL

MEP
ADDRESS HVAC AS NEC FOR REMODEL ONLY
UPDATE ELEC AND PLBG AS NEC FOR REMODEL ONLY

(E) CLG REG

CENTER ENTRY DOOR WALL LIGHTS AT 8\"/>

(N) OUTLETS THIS ROOM, AS DESIGNED

MEP LEGEND

- RECESSED LIGHT
- CEILING LIGHT
- SCONCE
- SWITCH
- OUTLET

DOORS & WINDOWS

- 100 DOOR
- A1 WINDOW

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

- (E) WALL
- (N) WALL
- (E) HALF WL

ROOM LEGEND

- WORK THIS PHASE
- NO WORK THIS AREA



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A EXTERIOR ELEVATION - FRONT & SOUTHWEST
SCALE: 1/4"= 1'-0"



B EXTERIOR PERSPECTIVES
NO SCALE - CONCEPTUAL ONLY

HALF SCALE

GENERAL NOTES
DETAILS & FINISHES TO MATCH (E) AS CLOSE AS POSSIBLE

- 1 PATCH SIDING AS NEC AFTER WINDOW REMOVAL
- 2 ASSESS (E) DOWNSPOUT FOR POSS RELOCATION TO ADJ EXT WALL
- 3 RADIUS OF ARCH WNDW NOT AS DRAWN! SEE DETAIL C-A3.1

MILLWORK

MILLWORK IS PAINTED, UNO

(N) CORNER BOARDS @ ALL EXTERIOR CORNERS

MATCH ADJ PROFILES AS CLOSELY AS POSSIBLE @ (N)

(N) SHUTTERS ARE 24" WIDE

(N) SHUTTERS ARE SET BY WINDOW WIDTH

(N) PLANTER BOX W/ DECORATIVE CORBELS

STONE CAP @ TOP OF STONE; HEIGHT TO TERMINATE TWO FULL SIDING BOARDS BELOW WINDOW

2X10 BELLY BAND TO SEPARATE SHAKE SIDING & STONE VENEER AT ADDITION

NOT USED

MIN 4X8 BEAM WRAPPED

18X18 COLUMN @ BASE & TAPERS TO 10X10 @ TOP - SEE A4.1 FOR MORE INFO

FINISHES

1E STONE VENEER

2F (N) SHINGLE SIDING

3F DECORATIVE CAPITAL W/ STONE VENEER; FINAL DESIGN DETAILS TBD BY CLIENT & STONE INSTALLER

4F CONCRETE STAIRS & LANDINGS

5F PAINT COLUMN CAPITAL & COLUMN BASE W/ ACCENT COLOR

6F (E) HARDI SIDING

7F HORIZONTAL LAP SIDING AT EXTERIOR WALL UNDER STAIRS

MEP

10M (N) WALL LIGHT IN (E) LOC

11M CENTER ENTRY DOOR WALL LIGHTS AT 80" ABOVE PORCH FLOOR & 10" FROM DOOR OPENING

12M (N) WATER SPIGOT

13M (N) LIGHTS AT POSTS; NOT AS DRAWN

DOORS & WINDOWS

SEE SPEC FOR DOOR STYLES; NOT AS DRAWN

100 DOOR

A1 WINDOW



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EXTERIOR ELEVATION & PERSPECTIVES

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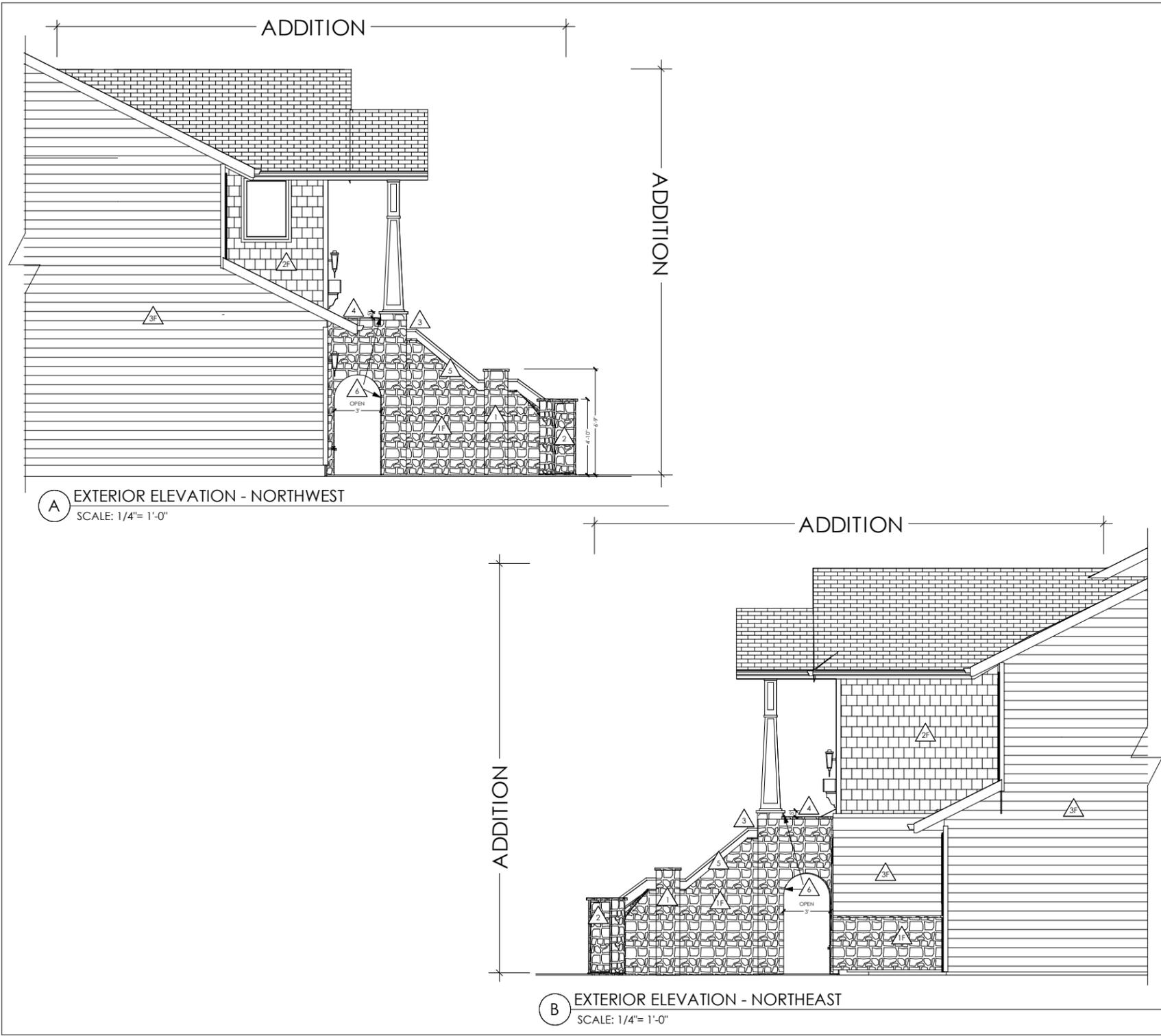
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- GENERAL NOTES**
DETAILS & FINISHES TO MATCH (E) AS CLOSE AS POSSIBLE
- MILLWORK**
MILLWORK IS PAINTED, TYP.
- CORNER BOARDS @ EXTERIOR CORNERS TO MATCH (E) AS CLOSELY AS POSS
- 1 18 X 18 COLUMN W/ STONE CAP PER INSTALLER
 - 2 20 X 20 COLUMN W/ STONE CAP PER INSTALLER
 - 3 TOP OF CUSTOM RAILING @ 33" ABOVE FINISHED TREAD
 - 4 TOP OF STONE CAP AT +/- 30" ABOVE LANDING
 - 5 TOP OF STONE CAP ALONG SLOPE OF STAIRS +/- 26" ABOVE EACH STEP
 - 6 FRAME (N) DOORWAY AS TALL AS POSS; ALIGN EDGE OF OPENING W/ EDGE OF COLUMN ABOVE
- FINISHES**
- 1F (N) STONE VENEER
 - 2F (N) SHINGLE SIDING
 - 3F (E) HARDI SIDING



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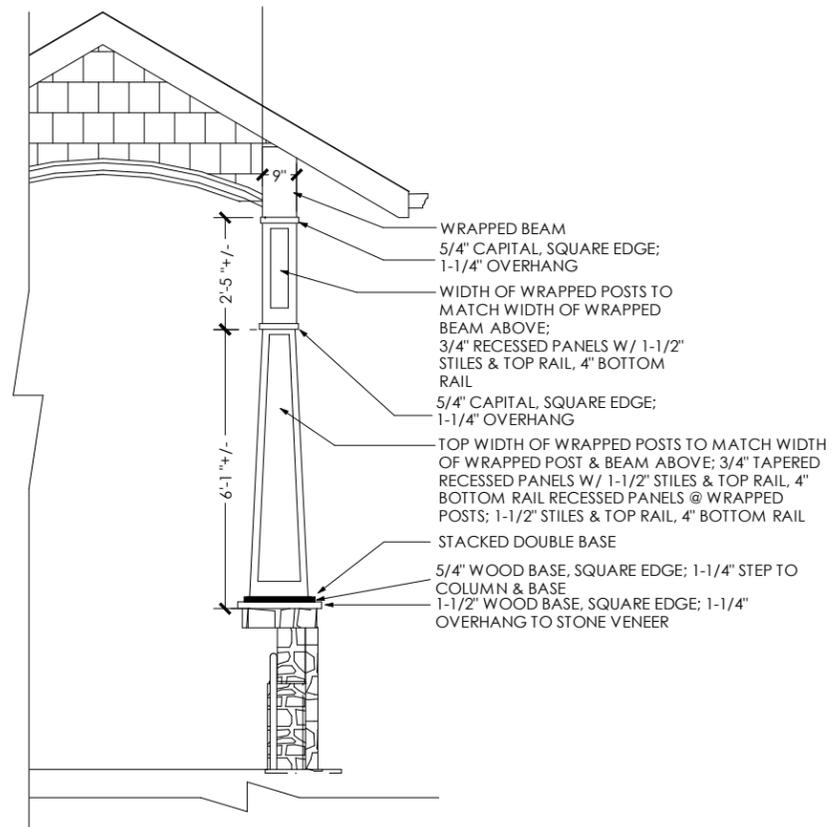
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EXTERIOR ELEVATIONS

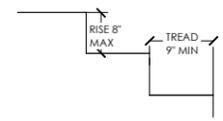
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HALF SCALE



A PORCH COLUMN FINISH DETAIL
SCALE: 1/2" = 1'-0"



B STANDARD TREAD & RISER DETAIL
SCALE: NOT TO SCALE

GENERAL NOTES
ALL DIMENSIONS ARE
FINISH TO FINISH UNO.



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PAGE TITLE:
DETAILS

Structural info on 5 pages

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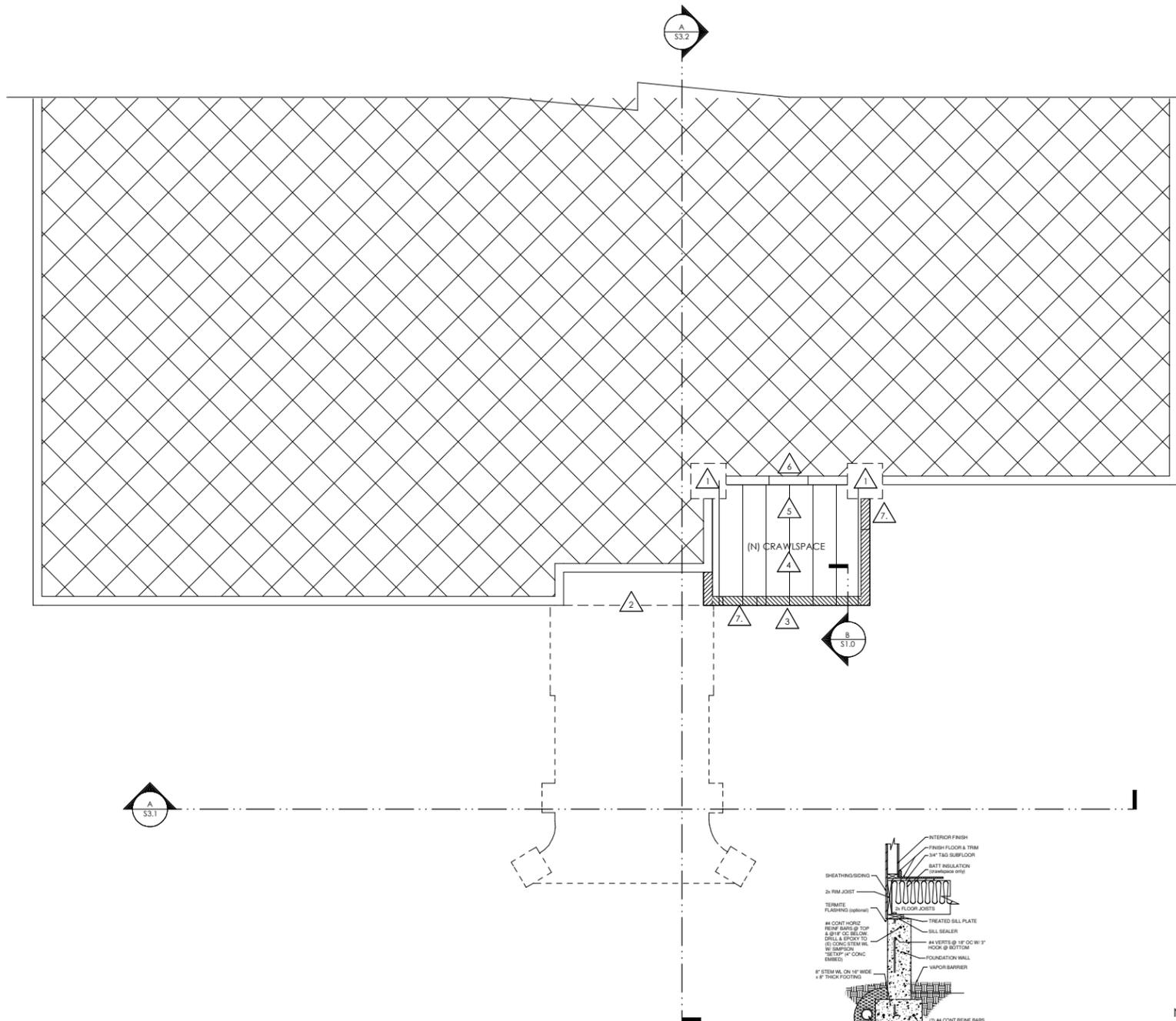
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HALF SCALE



A FOUNDATION & FIRST FLOOR FRAMING PLAN
SCALE: 1/4" = 1'-0"

B FOOTING DETAIL
SCALE: NOT TO SCALE

GENERAL NOTES
STRUCTURAL PER SESE.
SEE CALC PACKET FOR
FURTHER INFO.
SEE SHEET S3.3 FOR ENTRY
STAIRS FOUNDATION.

- 1 VERIFY / PROVIDE 2" X 2" X 10' FOOTING W/ (2) #4 EA WAY BELOW (E) FOUNDATION WL
- 2 (E) CANTILEVER
- 3 8" CONC STEM WL W/ #4 VERTICAL @ 48" OC (CENTERED IN WL) & #4 HORIZONTAL @ TOP OF WL & @ 18" OC BELOW ON 1'-4" X 8" FOOTING W/ (2) #4 CONT (DRILL & EPOXY HORIZONTAL BARS TO (E) CONC STEM/FTG PER SIMPSON "SETUP" - 4" CONC EMBED)
- 4 18" MIN CRAWSPACE HT W/ TOP OF (N) & (E) FDN TO ALLOW (N) FINISH FLR TO PLANE OUT LEVEL W/ (E) FINISH FLR. ADJUST CRAWSPACE HEIGHT AS NEC WITH FEMA COMPLIANT FLOOD VENTS FOR (N) CRAWSPACE. PER WEST LINN DEVELOPMENT CODE CH 22.080 (N) CRAWSPACE REQUIRES (2) FLOOD VENTS MIN OR EQUAL TO 1 SQ INCH PER 1 SQ FT OF ENCLOSED SPACE
- 5 2X8 MIN FLR JOISTS @ 16" OC
- 6 ACCESS HOLE IN (E) STEM WALL
- 7 (X2) FEMA APPROVED FLOOD VENTS

WALL LEGEND
SCALE: 1/4" = 1'-0"
[] FND WL
[] (N) FND WL
ROOM LEGEND
[] WORK THIS PHASE
[X] NO WORK THIS AREA



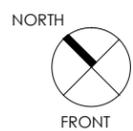
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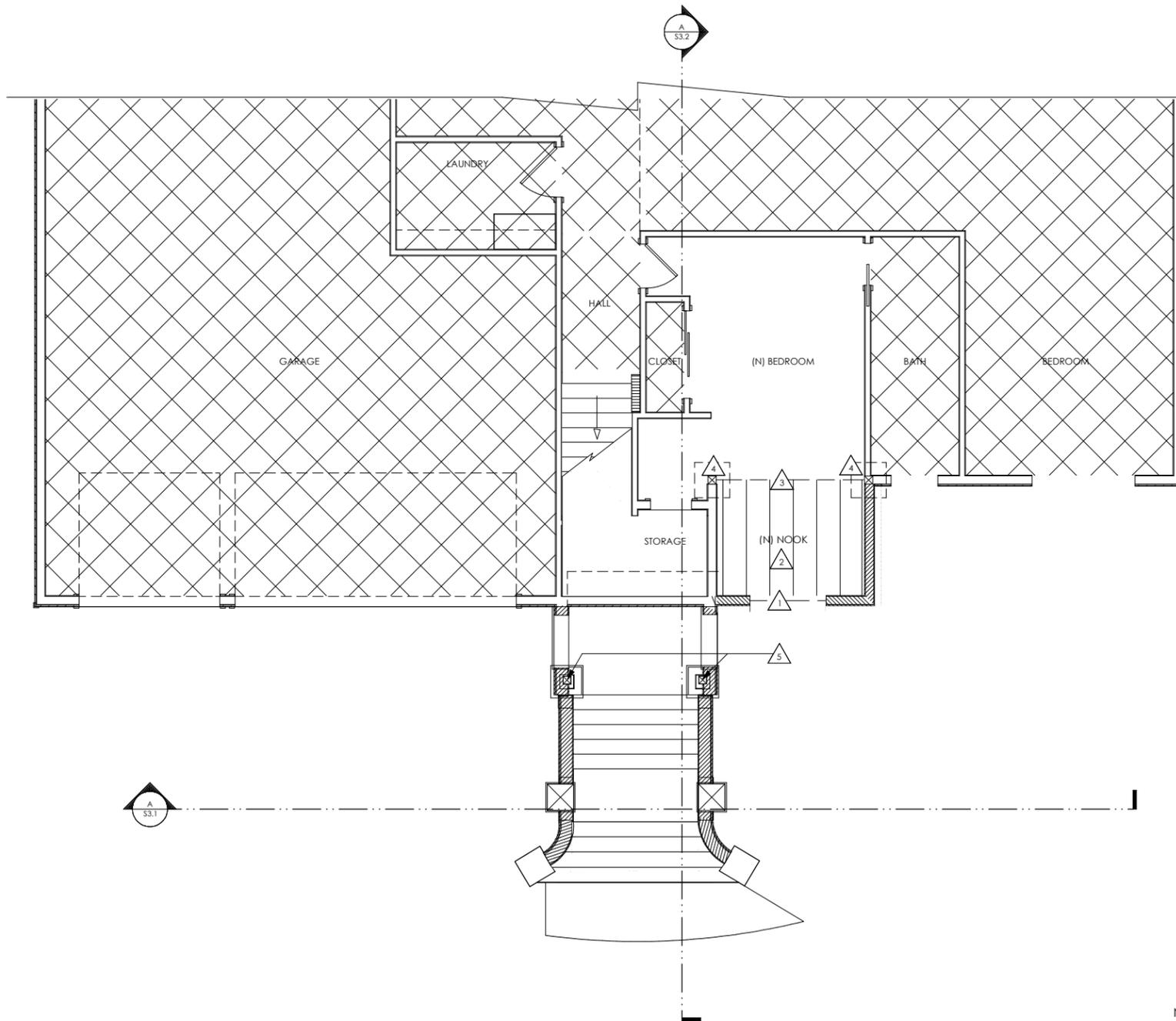
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FOUNDATION & FIRST FLOOR FRAMING PLAN

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HALF SCALE



A FIRST FLOOR CEILING FRAMING/ SECOND FLOOR FRAMING PLAN
SCALE: 1/4" = 1'-0"

HALF SCALE

- GENERAL NOTES**
STRUCTURAL PER SESE.
SEE CALC PACKET FOR
FURTHER INFO
- 1 4x8 MIN HEADER
 - 2 2x8 MIN FLR JOISTS @ 14" OC W/ SIMPSON "HUS28" HANGERS TO FLUSH BEAM
 - 3 (3) 1.75 X 7.25 LVL 1.9E FLUSH BEAM LAMINATED W/ (4) 16d @ 12" OC
 - 4 6x6 POST BELOW (N) BEAM ABOVE CLO PLANE
 - 5 6x6 POST W/ SIMPSON "CBSQ66" COLUMN BASE @ BASE & "CCG46" COLUMN CAP @ TOP



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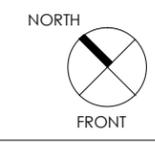
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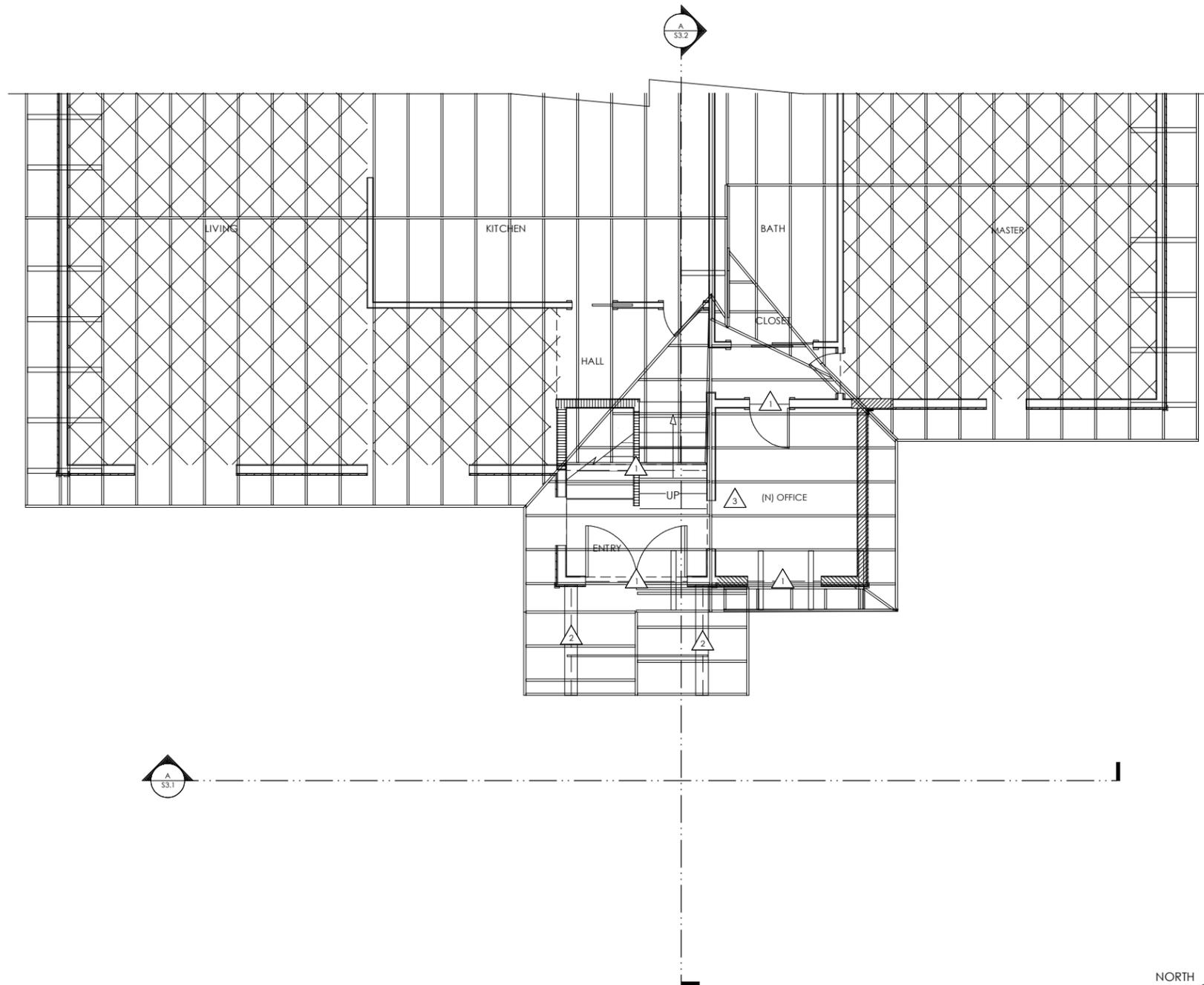
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- WALL LEGEND**
SCALE: 1/4"=1'-0"
- (E) WALL
 - (N) WALL
 - (E) HALF WL
- ROOM LEGEND**
- WORK THIS PHASE
 - NO WORK THIS AREA



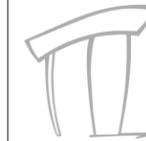


A SECOND FLOOR CEILING & ROOF FRAMING PLAN
SCALE: 1/4" = 1'-0"

HALF SCALE

GENERAL NOTES
STRUCTURAL PER SESE.
SEE CALC PACKET FOR
FURTHER INFO

- 1 4XB MIN HEADER
VERIFY / PROVIDE
- 2 4XB BEAM
- 3 2X4 OVERBUILT
RAFTERS @ 24" OC
W/ 2XB CLG
JOISTS @ 24" OC



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FAX 503.493.0023
OR CCB NO.: 119917
WA NO.: ARCIFL*910KJ

JULIE & CRAIG HEATH
19220 NIXON AVE
WEST LINN, OR 97068

PAGE TITLE:
**SECOND
FLOOR CEILING
& ROOF
FRAMING PLAN**

JOB NO.: 13001

DESIGNER:
KRISTYN BESTER

DRAWN BY:
BRADLEY HORNE

DATE:
04.29.2013
CONSTRUCTION
SET

REVISED:
05.30.2013

PAGE NO.:

S1.2

WALL LEGEND

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

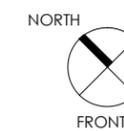
[Symbol] (E) WALL

[Symbol] (N) WALL

ROOM LEGEND

[Symbol] WORK THIS PHASE

[Symbol] NO WORK THIS AREA





A STRUCTURAL SECTION
SCALE: 1/4" = 1'-0"



B PERSPECTIVE
SCALE: NOT TO SCALE

HALF SCALE

GENERAL NOTES

STRUCTURAL PER SESE,
SEE CALC PACKET FOR FURTHER INFO

- 1 TYP ROOF @ (N)
-FINISHES, MILLWORK & GUTTERS & DS TO MATCH (E) AS CLOSE AS POSSIBLE
-1/2" ROOF SHEATHING W/ ACX 24-0 APA RATING W/ 8d @ 4" OC AT EDGES & 8d @ 12" OC AT FIELD TYP.
UNO
-#30 FELT
-VENTING AS REQUIRED
-2X4 OVERBUILT RAFTERS AT 24" OC - PITCH TO MATCH (E)
-TIE INTO (E) RAIN WATER MANAGEMENT
- 2 GABLE WALL SHITG TO HAVE SINGLE 4X8 SHEET CENTERED ON GABLE & EDGE NAILED TO EA RAFTER
- 3 TYP WALLS @ (N)
-FINISHES, MILLWORK & GUTTERS & DS TO MATCH (E) AS CLOSE AS POSSIBLE
-1/2" WALL SHEATHING W/ 8d @ 4" OC AT EDGES & 8d @ 12" OC AT FIELD TYP. UNO
-2X6 STUDS AT 16" OC
-DOUBLE TOP PLATE
-SINGLE SOLE PLATE ON SUBFLOOR
-R-21 INSUL MIN TYP
- 4 VERIFY / PROVIDE A STRAIGHT RIDGE LINE PER HOME OWNER SITE VISIT COMMENTS / CONCERNS
- 5 SIMPSON "HGA10KT" @ EA RAFTER TO BM CONNECTION
- 6 2X6 FLAT VALLEY NAILER W/ (3) 10d TO EA (E) RAFTER/TRUSS & EDGE NAILED TO (N) ROOF SHITG ABOVE
- 7 (N) 2X8 STRUCTURAL CLG JST @ 24" OC & 2X4 OVERBUILT RAFTERS @ 24" OC W/ 2X4 POSTS DOWN TO CLG JST STAGGERED @ 48" OC MAX SPAN. FASTEN EA END OF POSTS TO RAFTER & CLG JST W/ (3) 10d, R-38 MIN INSUL TYP
- 8 SIMPSON "CS20" ALIGNED ABOVE & BELOW WINDOW OPENINGS. FASTEN EA END W/ (7) 10d TO 2X6 BLOCKING & INTERMEDIATE W/ 10d @ 6" OC TO HEADER, SILL & 2X6 BLOCKING W/ 8d @ 6" OC INTERMEDIATE



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PAGE TITLE:
STRUCTURAL SECTION, PERSPECTIVE & DETAIL

JOB NO.: 13001

DESIGNER:
KRISTYN BESTER

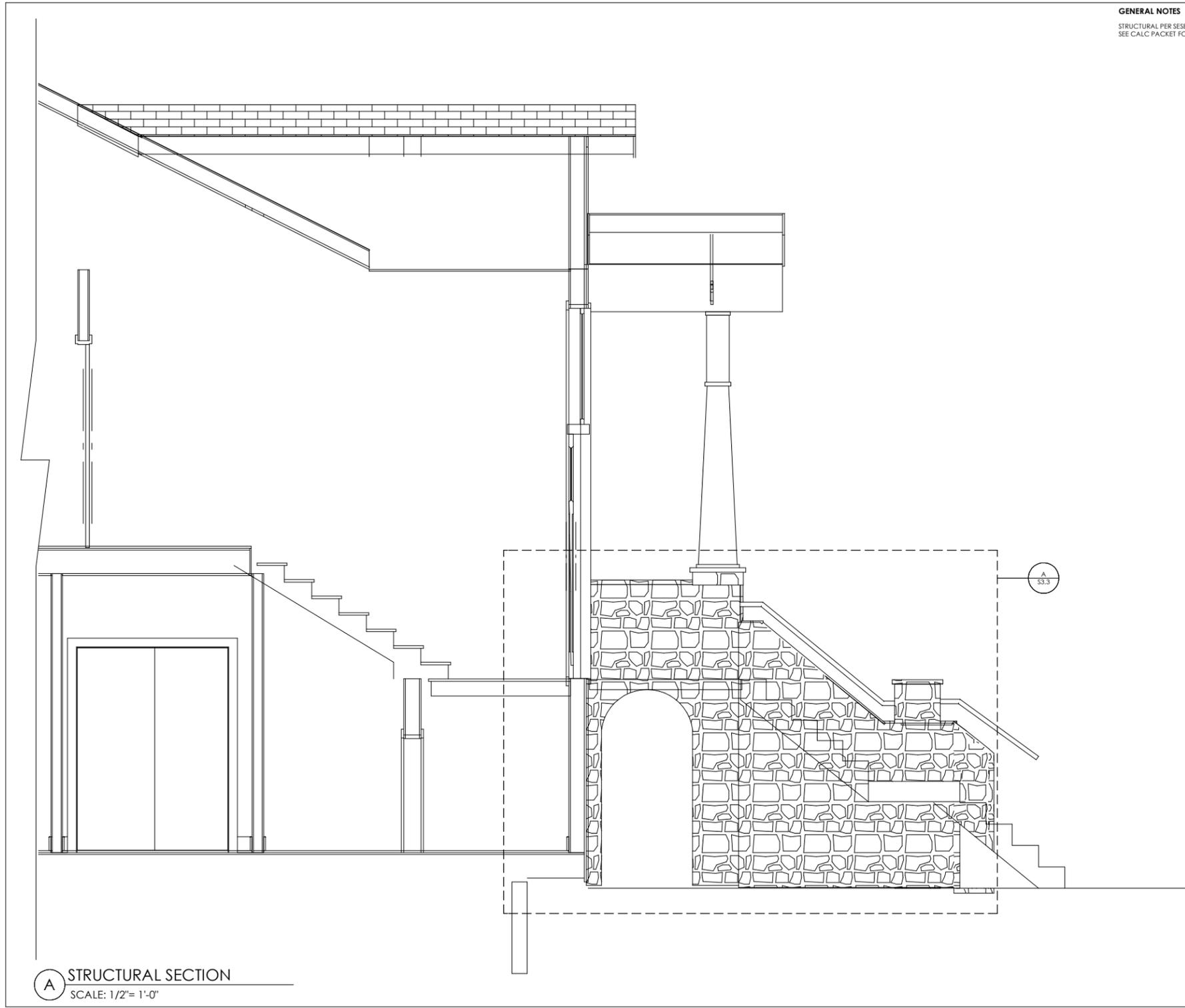
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S3.1



GENERAL NOTES
 STRUCTURAL PER SESE,
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PAGE TITLE:

STRUCTURAL SECTION

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S3.2

A STRUCTURAL SECTION
 SCALE: 1/2" = 1'-0"

HALF SCALE

GENERAL NOTES
 STRUCTURAL SECTIONS & DETAILS PER SESE.
 SEE CALC PACKET FOR FURTHER INFO.

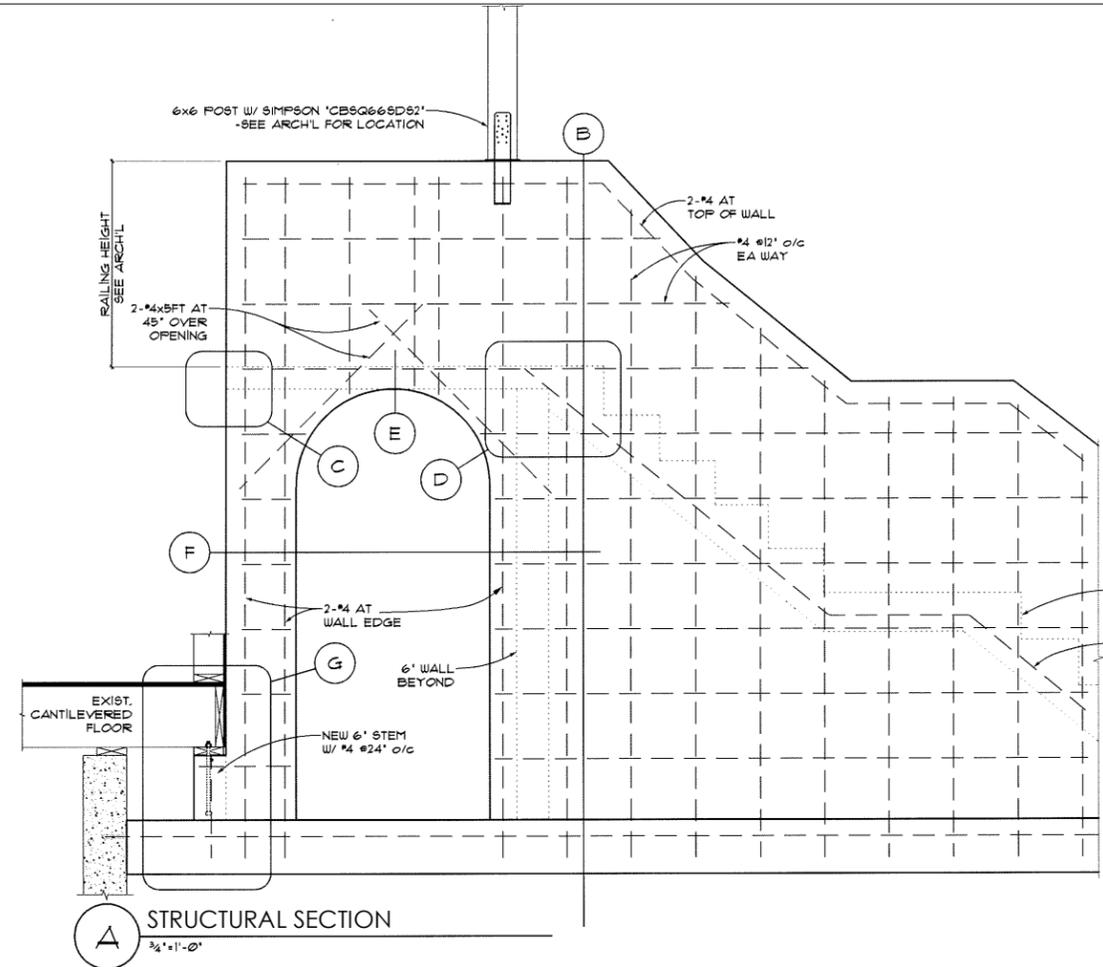


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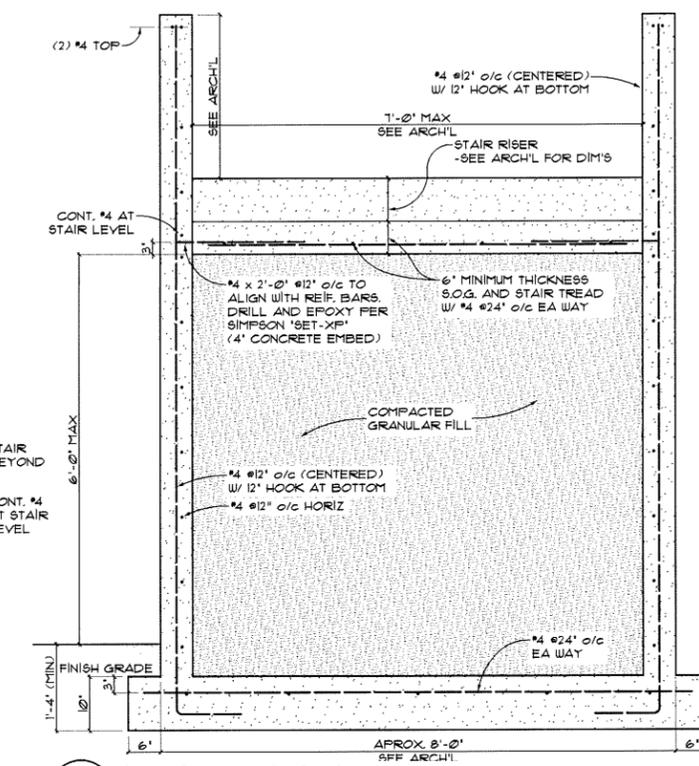
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PAGE TITLE:
STRUCTURAL SECTION & DETAILS
 JOB NO.: 13001
 DESIGNER: KRISTYN BESTER
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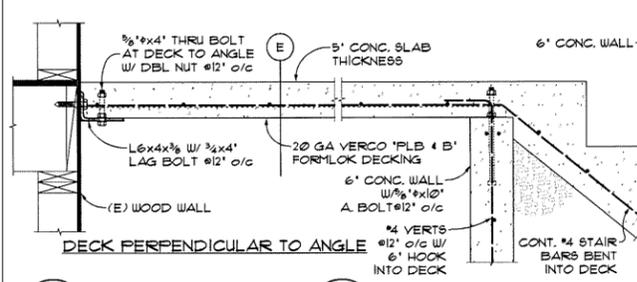
PAGE NO.:
S3.3



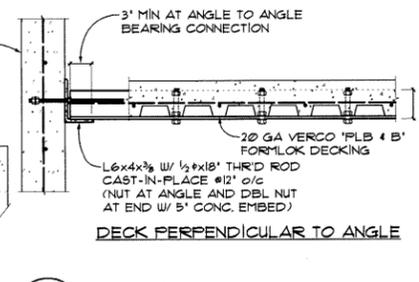
A STRUCTURAL SECTION
 3/4" x 1'-0"



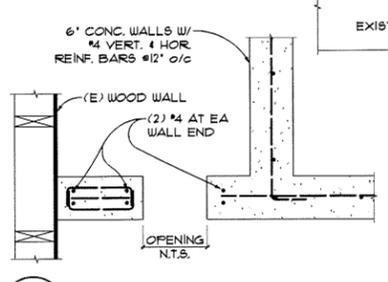
B STRUCTURAL SECTION
 3/4" x 1'-0"



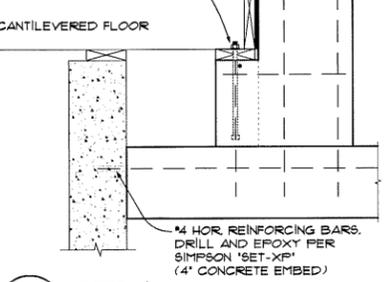
C DETAIL
 1" x 1'-0"



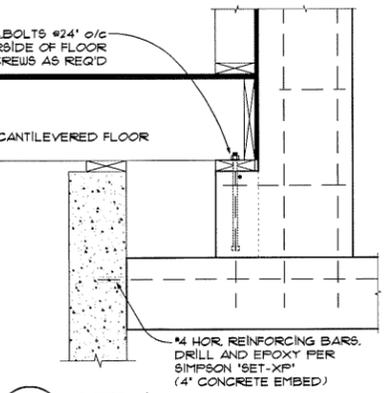
D DETAIL
 1" x 1'-0"



E DETAIL
 1" x 1'-0"



F DETAIL
 1" x 1'-0"



G DETAIL
 1" x 1'-0"

HALF SCALE



SMART VENT® - Model: 1540-510



Dual Function SMART VENT® **Superior Flood Protection and Natural Air Ventilation**

ICC-ES Evaluated and FEMA Accepted Foundation Flood Vents

- Potential savings on homeowner's NFIP premiums
- Preserves aesthetic beauty of a home by requiring 2/3 less vents
- Each vent certified to protect 200 sq. ft. of your home
- Code Compliant, FEMA accepted, ICC-ES Evaluated
- All Stainless Steel construction meets or exceeds flood and corrosion resistance code requirements
- Patented automatic floats release bi-directional flood door
- Temperature controlled louvers automatically open in warm weather and close in cold weather

One 16" x 8" vent is certified to cover 200 square feet of enclosed area for flood protection and 51 square inches for ventilation

SMART VENT® models are certified to provide flood protection and ventilation. This model is used for a home with a crawl space or any enclosed area that desires natural air ventilation and flood protection. All stainless steel construction resists weather and pest.



SMART VENT

www.smartvent.com • 877-441-8368



SMART VENT® - Model: 1540-510



Model #: 1540-510

Installation Type: Masonry Wall

Style: louvered

Dimensions: 16" x 8"

Rough Opening: 16¼" x 8¼" (one block, or CMU)

Finish: Stainless Steel (Standard)

Available Powder Coat Colors For Special Order:



White



Wheat



Gray



Black



Stainless (standard)

Optional Accessories:

Fire Damper, Interior Trim Flange & Inner Sleeve, Rain Shield

Other Models Available: Insulated FLOOD VENT, Overhead Garage Door Model, Stacked and Quad Configurations, Models for Wood Studded Wall Applications and Pour in Place Buck Systems.

There's more online at www.smartvent.com

Dealer Locator, Installer Locator, Cad Drawings, Installation Instructions, Technical Specifications, Frequently Asked Questions, Videos, Testimonials, Resource Library Database, Insurance Forms.



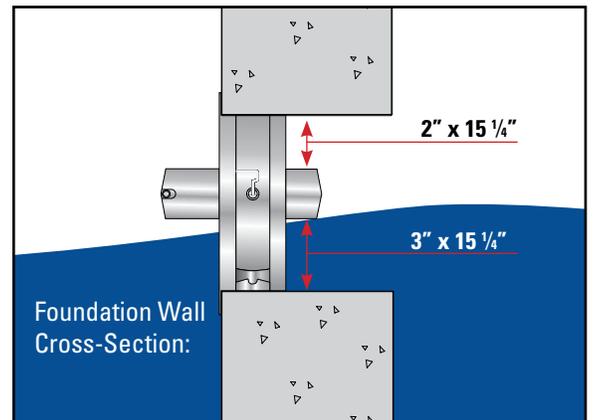
Rapidly rising floodwater can put extreme pressure on the foundation walls causing improperly vented structures to buckle and collapse. SMART VENTS® quickly and efficiently equalize the pressure and minimize damage.

How it works:

Flood Protection: The SMART VENT® door is latched closed until flood water enters. Entering flood water lifts the patented internal floats which unlatches and rotates the door open. This allows the flood water to automatically enter and exit through the frame opening, relieving the pressure from your foundation walls.

Ventilation: A bimetal coil (like a thermostat, no electricity is needed) automatically opens and closes the ventilation louvers as temperature changes. They will be closed when it is freezing outside and open when it is warm outside to provide natural ventilation.

Important note: SMART VENT® does not rely on the louvers to let floodwater in and out. Regardless of the louvers' position, opened or closed, when floodwater flows into the door, the internal floats release the door to rotate open to relieve the hydrostatic pressure. The louvers and pest screen are rotated out of the path of the floodwater. The temperature-controlled louvers are for ventilation purposes only.



How does one SMART VENT® provide so much coverage?

You may have heard that FEMA requires that flood openings provide one square inch of opening per one square foot of enclosed area, referring to dimensions of the opening in proportion to the space to be vented. This is only partially correct. FEMA's regulations and guidelines do state that a non-engineered flood vent solution must (among other requirements) provide one square inch of opening per square foot of enclosed area to be vented. However; all SMART VENT® products are ICC-ES certified engineered openings. They have been designed, engineered, tested, rated, and certified to provide flood relief so efficiently that only one unit is needed for 200 square feet of enclosed area. It would be our pleasure to contact your code official, surveyor, or insurance agent if they require more information.