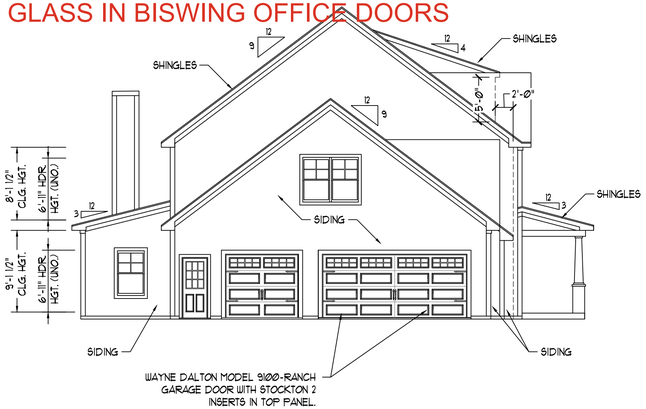
Lot 8
TBD Graham Mills Lane

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

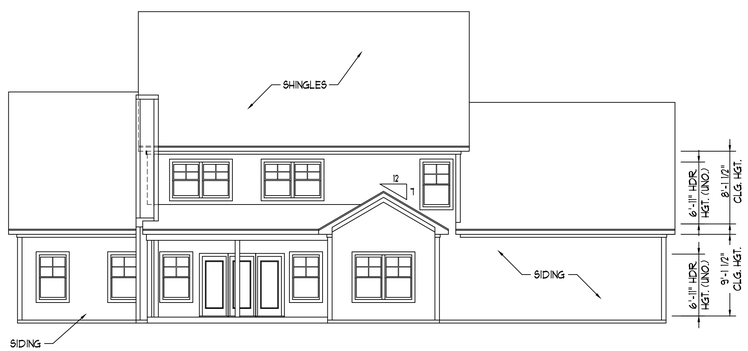
Case all openings
gravel w/concrete parking & turn around pad
50 amp outlet in detached garage wire & separate panel
Gourmet Kitchen
Sod full yard
STONE SKIRT
STONE AT BASE OF COLUMNS
BRICK STEM WALL
NO OPEN RAILS INSIDE HOUSE; NO PICKETS
NO GLASS IN BISWING OFFICE DOORS

CERAMIC MASTER SHOWER
HOT AND COLD WATER LINES FOR DOGWASH; DRAIN TO GO INTO WALL, NOT INTO FLOOR
OAK TREADS

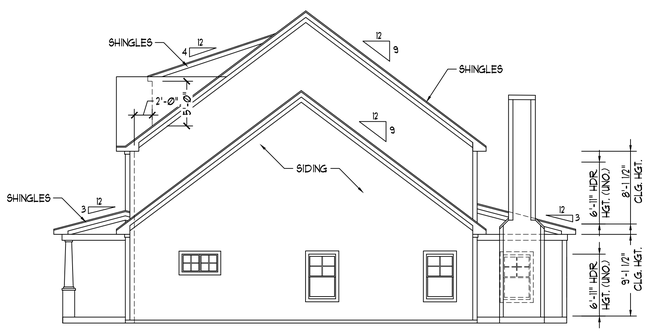
NOTICE TO CONTRACTOR
All construction must comply with current NC Building Codes and is subject to field inspection and verification.
APPROVED
Limited building only review
Permit holder responsible for full compliance with the code
05/08/2025
Harnett COUNTY NORTH CAROLINA



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



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



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

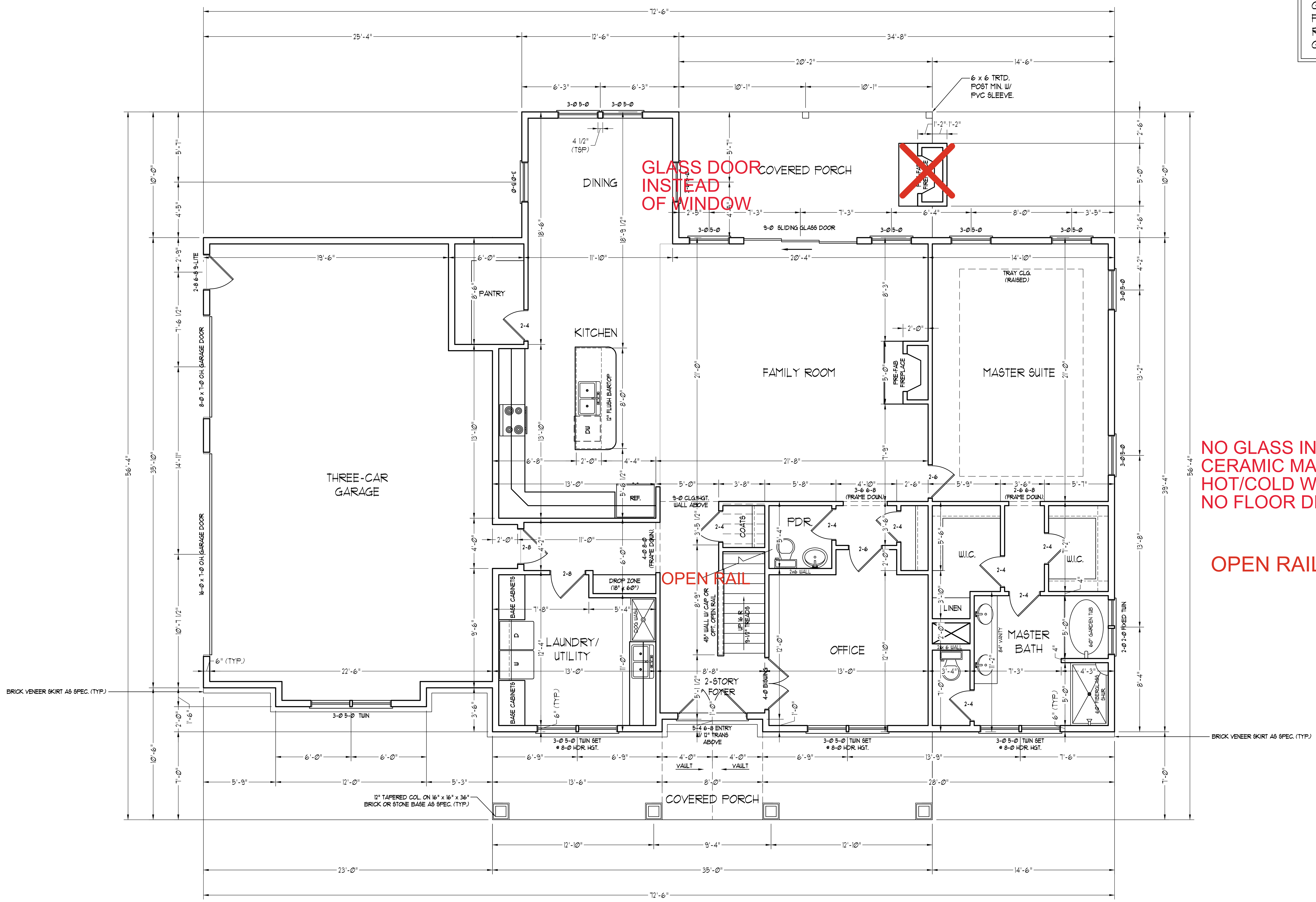
RENAISSANCE
RESIDENTIAL DESIGN, INC.
RALEIGH, NC 27612
(919) 829-1198
WWW.RRDCAROLINA.COM
"The art of transforming your vision into reality."

ONSITE HOMES

ONSITE HOMES
WAKEFIELD
DRIVE LEFT

DATE: FEBRUARY 16, 2021
REV.:
SCALE: AS NOTED
DRAWN BY: WG
ENGINEERED BY:
REVIEWED BY:

ELEVATIONS
A-1



SQUARE FOOTAGE	
1st FLOOR:	2089 SQ. FT.
2nd FLOOR:	1369 SQ. FT.
TOTAL:	3458 SQ. FT.
OPT. REC. ROOM:	442 SQ. FT.
GRAND TOTAL:	3900 SQ. FT.
FRONT PORCH:	253 SQ. FT.
REAR PORCH:	202 SQ. FT.
GARAGE:	818 SQ. FT.

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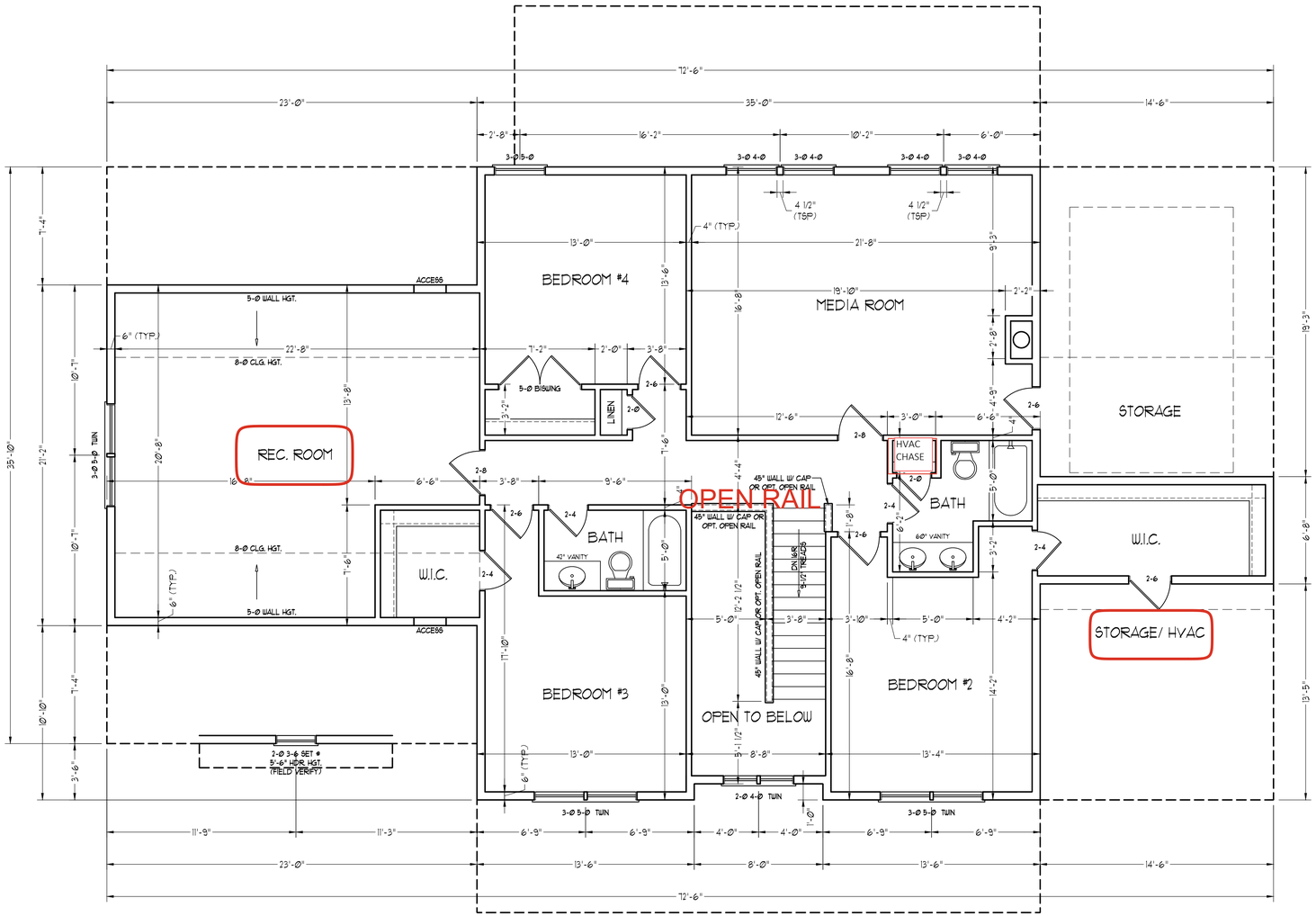
ONSITE HOMES

ONSITE HOMES
WAKEFIELD
DRIVE LEFT

DATE: FEBRUARY 16, 2021
REV.:
SCALE: 1/4"=1'-0"
DRAWN BY: WG
ENGINEERED BY:
REVIEWED BY:

FIRST FLOOR PLAN

A-2



OPEN RAIL

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ONSITE HOMES

ONSITE HOMES
WAKEFIELD
DRIVE LEFT

DATE: FEBRUARY 16, 2021

REV.:

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

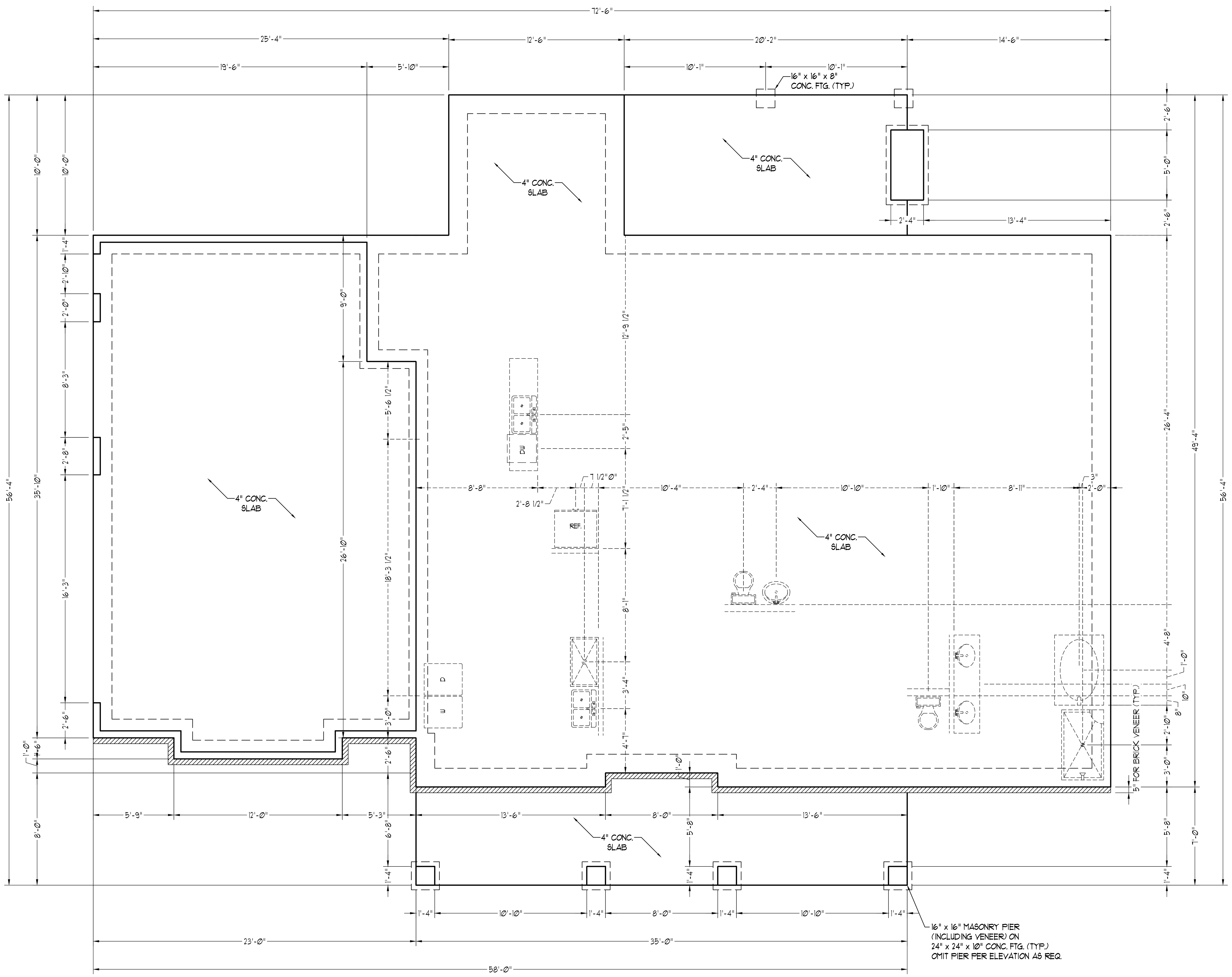
DRAWN BY: WG

ENGINEERED BY:

REVIEWED BY:

SECOND FLOOR PLAN

A-3



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ONSITE HOMES

ONSITE HOMES
WAKEFIELD
DRIVE LEFT

DATE: FEBRUARY 16, 2021

REV.:

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

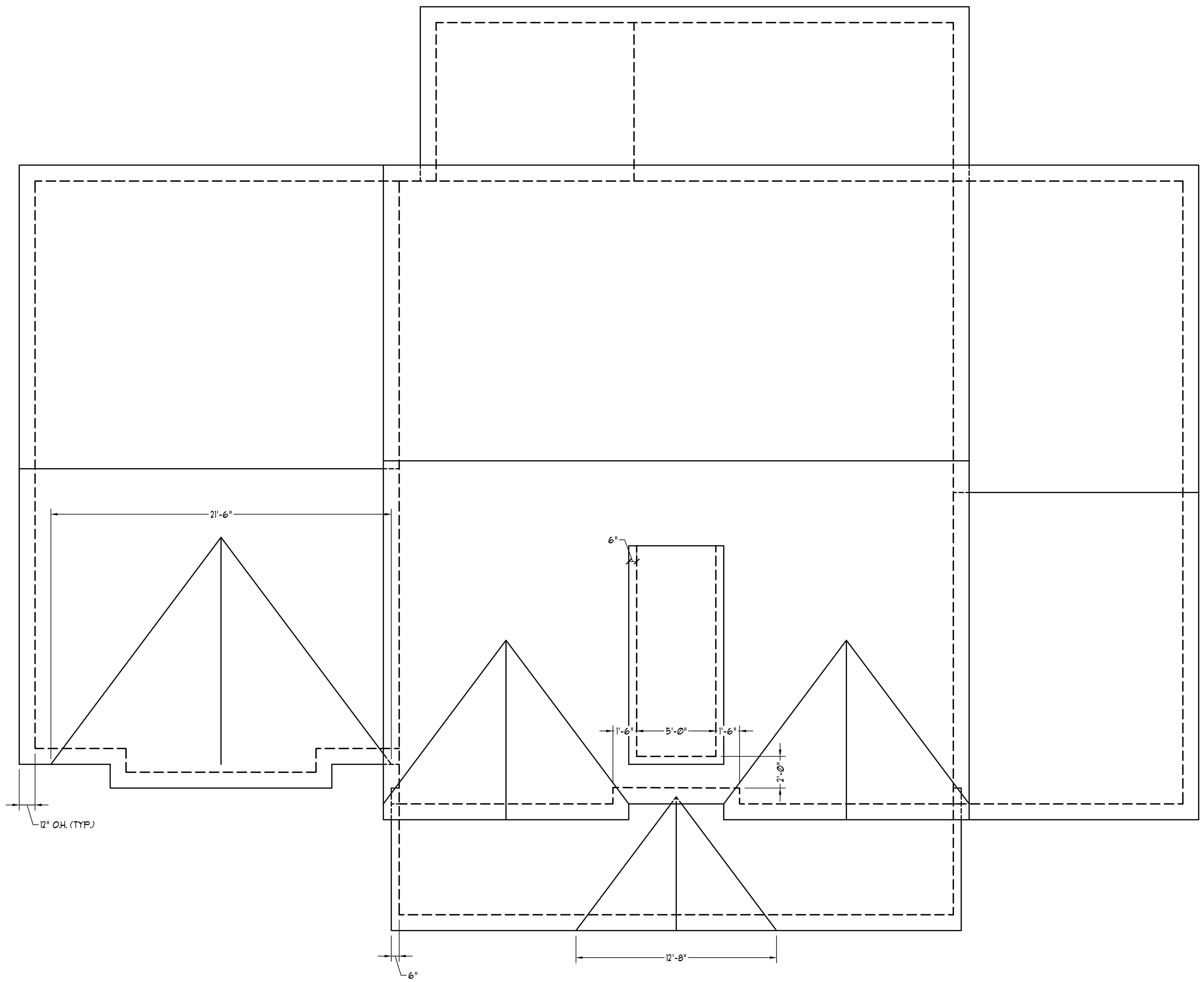
DRAWN BY: WG

ENGINEERED BY:

REVIEWED BY:

MONO SLAB FOUNDATION PLAN

S-1



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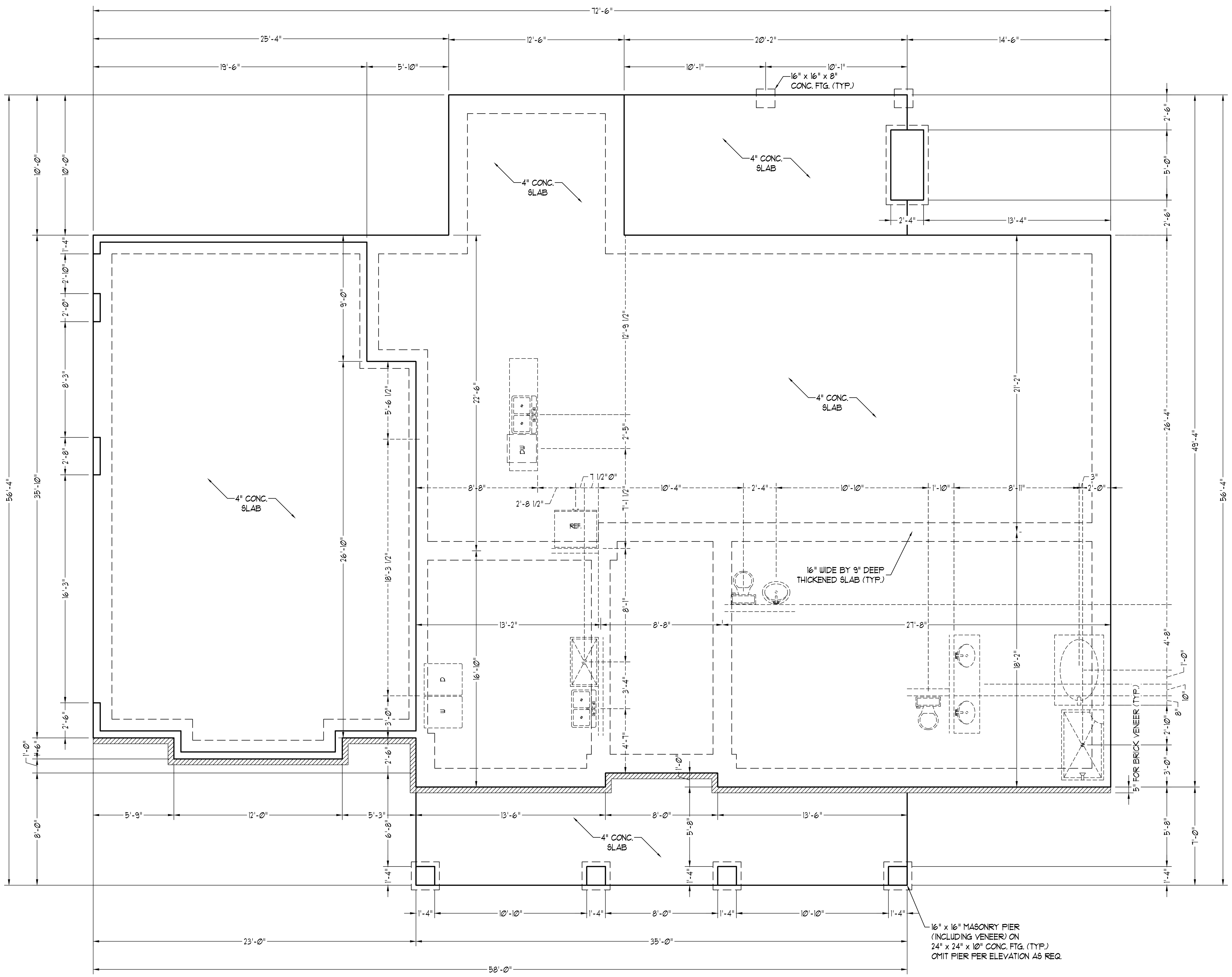
ONSITE HOMES

ONSITE HOMES WAKEFIELD DRIVE LEFT

DATE: FEBRUARY 16, 2021
REV.:
SCALE: 1/4"=1'-0"
DRAWN BY: WG
ENGINEERED BY:
REVIEWED BY:

ROOF PLAN

S-4



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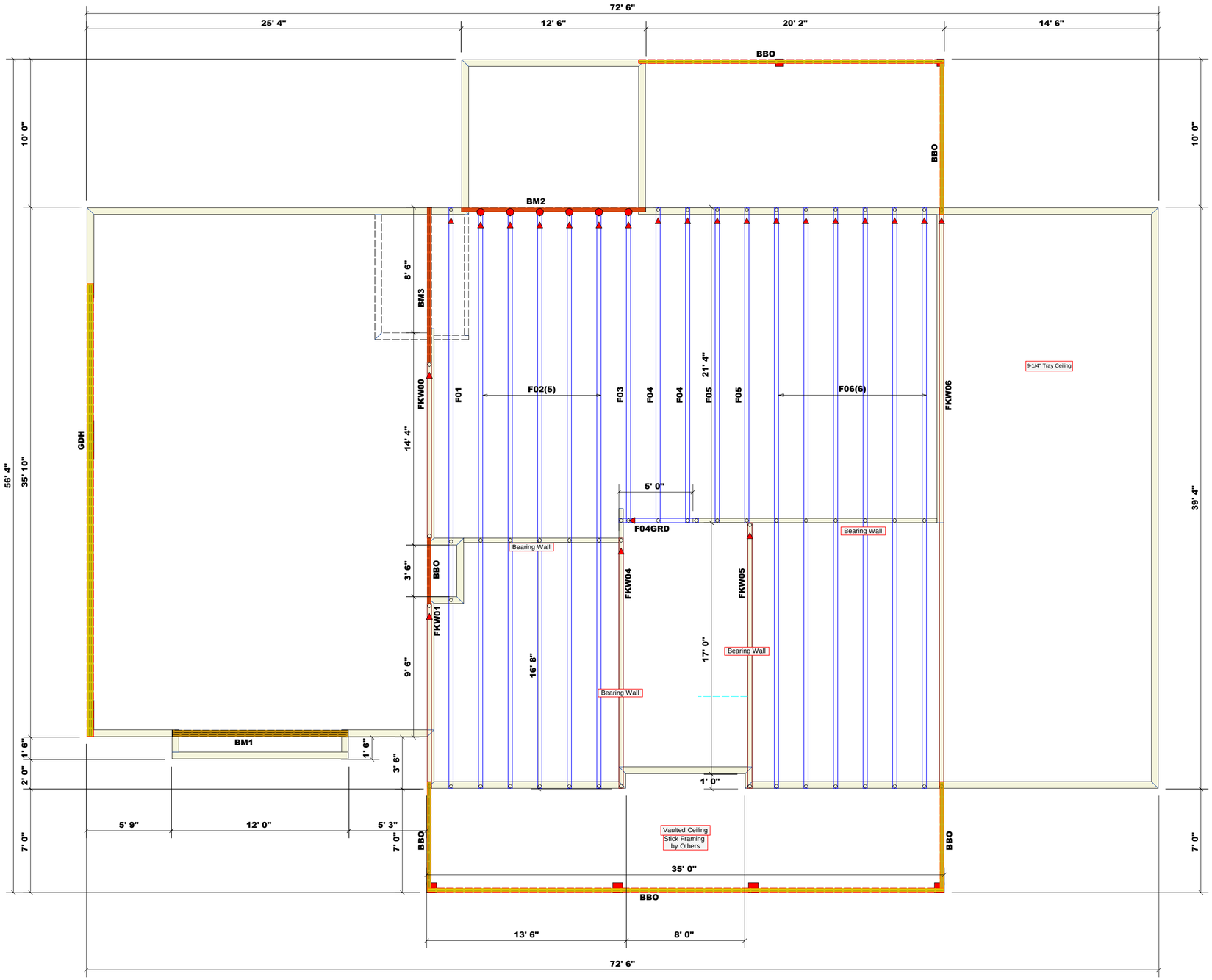
ONSITE HOMES

ONSITE HOMES
WAKEFIELD
DRIVE LEFT

DATE: FEBRUARY 16, 2021
REV.:
SCALE: 1/4"=1'-0"
DRAWN BY: WG
ENGINEERED BY:
REVIEWED BY:

MONO SLAB FOUNDATION PLAN

S-1



Products				
PlotID	Length	Product	Plies	Net Qty
BM1	12' 0"	1-3/4"x 11-7/8" LVL Kerto-S	3	3
BM2	13' 0"	1-3/4"x 18" LVL Kerto-S	2	2
BM3	11' 0"	1-3/4"x 18" LVL Kerto-S	2	2
GDH	31' 0"	1-3/4"x 11-7/8" LVL Kerto-S	3	3

Connector Information					Nail Information	
Sym	Product	Manuf	Qty	Supported Member	Header	Truss
●	JUS414	USP	6	NA	16d/3-1/2"	16d/3-1/2"

▲= Denotes Left End of Truss
(Reference Engineered Truss Drawing)

Dimension Notes
1. All exterior wall to wall dimensions are to face of sheathing unless noted otherwise
2. All interior wall dimensions are to face of stud unless noted otherwise
3. All exterior wall to truss dimensions are to face of stud unless noted otherwise

All Walls Shown Are Considered Load Bearing

COMTECH
ROOF & FLOOR TRUSSES & BEAMS
Reilly Road Industrial Park
Fayetteville, N.C. 28309
Phone: (910) 864-8787
Fax: (910) 864-4444

Bearing reactions less than or equal to 3000# are deemed to comply with the prescriptive Code requirements. The contractor shall refer to the attached Tables (derived from the prescriptive Code requirements) to determine the minimum foundation size and number of wood studs required to support reactions greater than 3000# but not greater than 15000#. A registered design professional shall be retained to design the support system for any reaction that exceeds those specified in the attached Tables. A registered design professional shall be retained to design the support system for all reactions that exceed 15000#.

Signature Hampton Horrocks

Hampton Horrocks

LOAD CHART FOR JACK STUDS

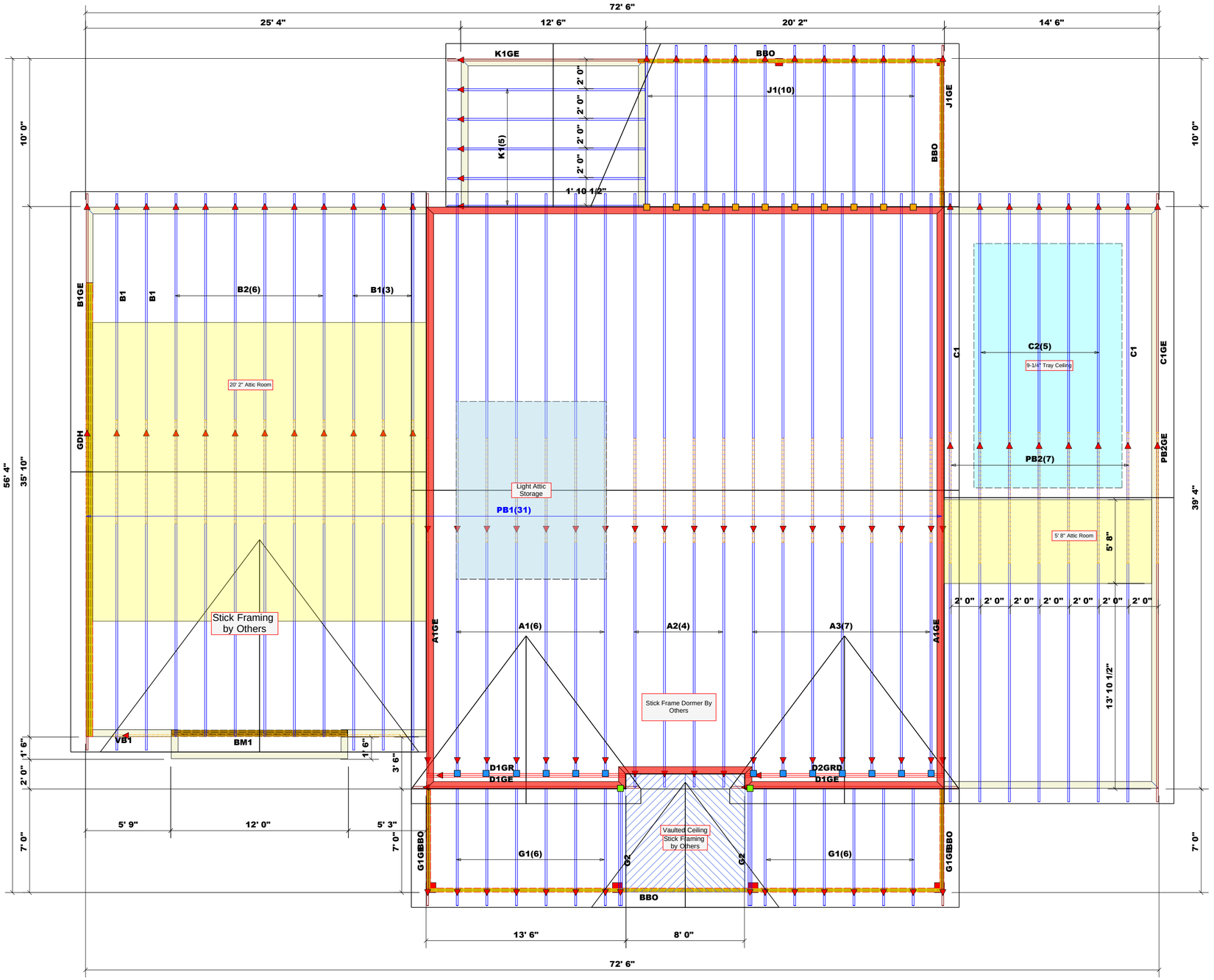
(BASED ON TABLES R502.5(1) & (b))

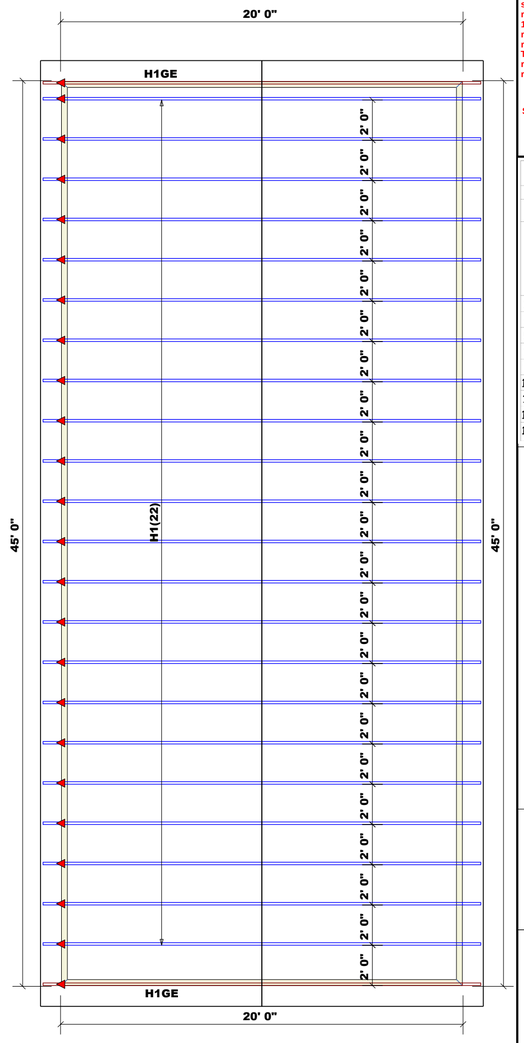
NUMBER OF JACK STUDS REQUIRED @ EA END OF HEADER/GIRDER

END REACTION (3# TO)	REQ'D STUDS FOR (2) PLY HEADER	END REACTION (4# TO)	REQ'D STUDS FOR (3) PLY HEADER	END REACTION (5# TO)	REQ'D STUDS FOR (4) PLY HEADER
1700	1	2550	1	3400	1
3400	2	5100	2	6800	2
5100	3	7650	3	10200	3
6800	4	10200	4	13600	4
8500	5	12750	5	17000	5
10200	6	15300	6		
11900	7				
13600	8				
15300	9				

BUILDER	Onsite Homes, LLC
JOB NAME	Lot 8 Graham Mill Lane
PLAN	Wakefield
SEAL DATE	N/A
QUOTE #	Quote #
JOB #	J0325-1553
CITY / CO.	Fayettville / Moore
ADDRESS	Lot 8 Graham Mill Lane
MODEL	Roof
DATE REV.	04/03/25
DRAWN BY	Hampton Horrocks
SALES REP.	Marshall Naylor

THIS IS A TRUSS PLACEMENT DIAGRAM ONLY.
These trusses are designed as individual building components to be incorporated into the building design at the specification of the building designer. See individual design sheets for each truss design identified on the placement drawing. The building designer is responsible for temporary and permanent bracing of the roof and floor system and for the overall structure. The design of the truss support structure including headers, beams, walls, and od columns is the responsibility of the building designer. For general guidance regarding bracing, consult BCSI-B1 and BCSI-B3 provided with the truss delivery package or online @ sbcindustry.com





GARAGE

Connector Information					Nail Information	
Sym	Product	Manuf	Qty	Supported Member	Header	Truss
	HUS26	USP	13	NA	16d/3-1/2"	16d/3-1/2"
	JUS26	USP	10	NA	10d/3"	10d/3"

▲= Denotes Left End of Truss
(Reference Engineered Truss Drawing)

Red hatched walls indicate top level walls

Dimension Notes
1. All exterior wall to wall dimensions are to face of sheathing unless noted otherwise
2. All interior wall dimensions are to face of stud unless noted otherwise
3. All exterior wall to truss dimensions are to face of stud unless noted otherwise

Roof Area = 6111.77 sq.ft.
Ridge Line = 157.17 ft.
Hip Line = 0 ft.
Horiz. OH = 399.43 ft.
Raked OH = 432.4 ft.
Decking = 210 sheets

COMTECH
ROOF & FLOOR TRUSSES & BEAMS
Reilly Road Industrial Park
Fayetteville, N.C. 28309
Phone: (910) 864-8787
Fax: (910) 864-4444

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Signature Hampton Horrocks

Hampton Horrocks

LOAD CHART FOR JACK STUDS

(BASED ON TABLES R502.5(1) & (b))

NUMBER OF JACK STUDS REQUIRED @ EA END OF HEADER/GIRDER

END REACTION (3# TO)	REQ'D STUDS FOR (2) 2"x? HEADER	END REACTION (4# TO)	REQ'D STUDS FOR (3) 2"x? HEADER	END REACTION (3# TO)	REQ'D STUDS FOR (4) 2"x? HEADER
1700	1	2550	1	3400	1
3400	2	5100	2	6800	2
5100	3	7650	3	10200	3
6800	4	10200	4	13600	4
8500	5	12750	5	17000	5
10200	6	15300	6		
11900	7				
13600	8				
15300	9				

BUILDER	Onsite Homes, LLC
JOB NAME	Lot 8 Graham Mill Lane
PLAN	Wakefield
SEAL DATE	N/A
QUOTE #	Quote #
JOB #	J0325-1552
CITY / CO.	Fayettville / Moore
ADDRESS	Lot 8 Graham Mill Lane
MODEL	Roof
DATE REV.	04/15/25
DRAWN BY	Hampton Horrocks
SALES REP.	Marshall Naylor

North Carolina 2018 - R402.1.5 Total UA

Property
, NC 27506
Model: Riverbirch

Organization
Southern Energy Manageme
Justin Smith

Inspection Status
Results are projected

Template - OnSite Homes - Wakefield 390
Riverbirch slab

Builder
OnSite Homes

This report is based on a proposed design and does not confirm field enforcement of design elements.

Building UA

Elements	NC Reference	As Designed
Ceilings	77.3	68.0
Above-Grade Walls	241.1	186.3
Windows, Doors and Skylights	198.6	186.0
Slab Floor:	103.5	135.7
Framed Floors	22.9	26.9
Foundation Walls	0.0	0.0
Rim Joists	8.2	6.6
Overall UA (Design must be equal or lower):	**651.6**	**609.5**

Requirements

✓	R402.1.5	Total UA alternative compliance passes by 6.5%.	The proposed home meets the UA requirement by 6.5%
✓	R402.3.2	Average SHGC: 0.27 Max SHGC: 0.30	Average SHGC of 0.27 is greater than the maximum of 0.30.
✓	R402.4.2.2	Air Leakage Testing	Air sealing is 4.80 ACH at 50 Pa. It must not exceed 5.00 ACH at 50 Pa.
✓	R402.5	Area-weighted average fenestration SHGC	Area-weighted average fenestration SHGC is 0.27. The maximum allowed value is [No Limit].
✓	R402.5	Area-weighted average fenestration U-Factor	
✓	R404.1	Lighting Equipment	
✓	Mandatory Checklist	Mandatory code requirements that are not checked by Ekotrope must be met.	2015 IECC Mandatory Checklist must be checked as complete.
✓	R403.3.1	Duct Insulation	Duct insulation meets the requirements specified in North Carolina 2018 Code Section 403.3.1.
✓	403.3.3	Duct Testing	

Design exceeds requirements for North Carolina 2018 Prescriptive compliance by 6.5%.

Name: Justin Smith
Signature: Justin Smith
Organization: Southern Energy Management
Digitally signed: 2/21/25 at 2:52 PM

Building Summary

Property
, NC 27506
Model: Riverbirch

Template - OnSite Homes - Wakefield 3900 plan slab - Riverbirch slab

Organization
Southern Energy Management
Justin Smith

Builder
OnSite Homes

Inspection Status
Results are projected

General Building Information

Number Of Bedrooms: 4	Number Of Floors: 2
Conditioned Floor Area [sq. ft.]: 3,900	Has Electric Vehicle Ready Space: No
Unconditioned, attached garage? Yes	Conditioned Volume [cu. ft.]: 36,594
Total Units in Building: 1	Residence Type: Single family detached
Number of Floors in Building: N/A	Floor Number: N/A
Model: Riverbirch	Community:
RESNET/IECC 2006-2018 Climate Zone: 4A	IECC 2021 Climate Zone: 3A

Envelope Components

Slab

Name	Library Type	Perimeter	Floor Grade	Carpet R	Exposed Masonry Area	Surface Area	Location	Enclosing
slab	Uninsulated	210	On Grade	1	0	2,089.0 ft²	Exposed Exterior	Conditioned Space

Slab Library List

Name	Wall Construction Type	Slab Completely Insulated?	Underslab Insulation Width [ft]	Perimeter Insulation Depth [ft]	Perimeter Insulation R Value	Perimeter Insulation Is Exterior	Thermal Break	Effective R-value
Uninsulated	Wood Frame / Other	No	0	0	0	No	No	0.00

Framed Floor

Name	Library Type	Carpet R	Floor Grade	Surface Area	Location	Effective R-value
over garage	R 19, 16"OC G1 Hardwood	0	Above Grade	488.0 ft²	Unconditioned, attached garage	18.155

Rim Joist

Name	Library Type	Surface Area	Location	Effective Insulation R-value
1st floor ambient	R 19 G1, 16"OC	104.0 ft²	Exposed Exterior	17.30
1st floor garage	R 19 G1, 16"OC	43.0 ft²	Unconditioned, attached garage	17.30

Wall

Name	Library Type	Surface Color	Solar Absorptance	Surface Area	Location	Effective R-value
1st floor ambient	R 19 FG G1 16" O.C	Medium	0.75	1,502.0 ft²	Exposed Exterior	16.805
1st floor garage	R 19 FG G1 16" O.C	Medium	0.75	388.0 ft²	Unconditioned, attached garage	16.805
2nd floor ambient	R 19 FG G1 16" O.C	Medium	0.75	829.0 ft²	Exposed Exterior	16.805
2nd floor attic	R 19 FG G1 16" O.C	Medium	0.75	979.0 ft²	Attic	16.805

Glazing

Name	Library Type	Wall Assignment	Foundation Wall Assignment	Is Operable	Overhang Depth	Overhang Ft To Top	Overhang Ft To Bottom	Orientation	Surface Area
front 2nd unshaded	35/27	2nd floor ambient		Yes	0	0	0	West	76.0 ft²
front shaded	35/27	1st floor ambient		Yes	7	1	6	West	66.0 ft²

Building Summary

Property
, NC 27506
Model: Riverbirch

Project & Plan
Template - OnSite Homes - Wakefield 3900 plan slab - C.
Riverbirch slab

Organization
Southern Energy Management
Justin Smith

Inspection Status
Results are projected

Builder
OnSite Homes

Name	Library Type	Wall Assignment	Foundation Wall Assignment	Is Operable	Overhang Depth	Overhang Ft To Top	Overhang Ft To Bottom	Orientation	Surface Area
front unshaded	35/27	1st floor ambient		Yes	0	0	0	West	30.0 ft²
left 2nd unshaded	35/27	2nd floor ambient		Yes	0	0	0	North	30.0 ft²
left unshaded	35/27	1st floor ambient		Yes	0	0	0	North	15.0 ft²
rear 2nd unshaded	35/27	2nd floor ambient		Yes	0	0	0	East	63.0 ft²
rear shaded	35/27	1st floor ambient		Yes	10	2	9	East	90.3 ft²
rear unshaded	35/27	1st floor ambient		Yes	0	0	0	East	60.0 ft²
right shaded	35/27	1st floor ambient		Yes	20	1	6	South	15.0 ft²
right unshaded	35/27	1st floor ambient		Yes	0	0	0	South	38.0 ft²

Glazing Library List

Name	Shgc	U-factor
35/27	0.27	0.350

Opaque Door

Name	Library Type	Wall Assignment	Foundation Wall Assignment	Emittance	Solar Absorptance	Surface Color	Surface Area	Location	Effective R-value
attic doors	Fiberglass R-5	2nd floor attic		0.9	0.75	Medium	30.0 ft²	Attic	0.200
front entry	Fiberglass R-5	1st floor ambient		0.9	0.75	Medium	36.0 ft²	Exposed Exterior	0.200
garage entry	Fiberglass R-5	1st floor garage		0.9	0.75	Medium	18.0 ft²	Unconditioned, attached garage	0.200

Roof Insulation

Name	Library Type	Attic Exterior Area [ft²]	Clay or Concrete Roof Tiles	Does the Roof have Eaves?	Roof Slope	Ceiling Framing Height [in.]	Eave Height [in.]	Eave Length [in.]	Surface Color	Solar Absorptance	Surface Area	Location
ceiling	R 38 Attic BLOWN FG G1 2x6 16"OC NO Radiant Barrier	3,788.19	No	No	N/A	N/A	N/A	N/A	Dark	0.9	2,577.0 ft²	Attic

Roof Insulation Library List

Name	Has Radiant Barrier	Effective R-value
R 38 Attic BLOWN FG G1 2x6 16"OC NO Radiant Barrier	No	37.887

Whole House Infiltration

Infiltration	Measurement Type	Shelter Class
2927 CFM at 50 Pa	Blower-door tested	4

Mechanicals, Lights & Water

Lighting

% Interior Fluorescent Lighting	% Interior LED Lighting	% Exterior Fluorescent Lighting	% Exterior LED Lighting	% Garage Fluorescent Lighting	% Garage LED Lighting
0	100	0	0	0	0

Building Summary

Property
, NC 27506
Model: Riverbirch

Project & Plan
Template - OnSite Homes - Wakefield 3900 plan slab - C.
Riverbirch slab

Organization
Southern Energy Management
Justin Smith

Inspection Status
Results are projected

Builder
OnSite Homes

Conditioning Equipment

Name	Library Type	Serial Number	Heating Percent Load	Cooling Percent Load	Hot Water Percent Load	Location
water heater	z 50 gal. 0.92 EF Elec		0%	0%	100%	Unspecified
whole house heat pump	z 48k 14.3 SEER2 7.5 HSPF2		100%	100%	0%	Unspecified

Equipment Type: z 48k 14.3 SEER2 7.5 HSPF2

Equipment Type	Air Source Heat Pump
Fuel Type	Electric
Distribution Type	Forced Air
Motor Type	ECM (Variable Speed)
Heat Pump System Type	Split System
Heating Efficiency	7.5 HSPF2
Heating Capacity [kBtu/h]	48
Backup Fuel Type	Electric
Switchover Temperature [°F]	0
Backup Heating Efficiency	1 COP
Use default Supplemental Heat	Yes
Cooling Efficiency	14.3 SEER2
Cooling Capacity [kBtu/h]	48

Equipment Type: z 50 gal. 0.92 EF Elec

Equipment Type	Residential Water Heater
Fuel Type	Electric
Distribution Type	Hydronic Delivery (Radiant)
Hot Water Efficiency	0.92 Energy Factor
Tank Capacity (gal.)	50
Hot Water Capacity [kBtu/h]	40
Recovery Efficiency	0.98

Distribution System

Distribution Type	Forced Air
Heating Equipment	whole house heat pump
Cooling Equipment	whole house heat pump
Sq. Feet Served	3,900
# Return Grilles	4
Supply Duct R Value	8
Return Duct R Value	8
Supply Duct Area [ft²]	1053
Return Duct Area [ft²]	780
Leakage to Outdoors	156 CFM @ 25Pa (4 / 100 ft²)
Total Leakage	156 CFM25
Total Leakage Duct Test Conditions	Post-Construction
Use Default Flow Rate	Yes
Duct 1	
Duct Location	Attic (well vented)
Percent Supply Area	60
Percent Return Area	60
Duct 2	
Duct Location	Conditioned Space
Percent Supply Area	40
Percent Return Area	40

Water Distribution

Water Fixture Type	Standard
Use Default Hot Water Pipe Length	No
Hot Water Pipe Length [ft]	108
At Least R3 Pipe Insulation?	No
Hot Water Recirculation System?	No
Drain Water Heat Recovery?	No

Appliances & Notes

Building Summary

Property
, NC 27506
Model: Riverbirch

Project & Plan
Template - OnSite Homes - Wakefield 3900 plan slab - C.
Riverbirch slab

Organization
Southern Energy Management
Justin Smith

Inspection Status
Results are projected

Builder
OnSite Homes

Clothes Dryer

Cef	3.01
Fuel Type	Electric
Field Utilization	Timer Controls
Is Outside Conditioned Space	No
Clothes Dryer Available	Yes
Defaults Type	HERS Reference
Is Ventless	No
Is Heat Pump	No

Clothes Washer

Label Energy Rating	153 kWh/Year
Annual Gas Cost	$12.00
Electric Rate	$0.11/kWh
Gas Rate	$1.22/Therm
Capacity	3.31
Imef	2.1547
Defaults Type	Custom
Load Type	Front-load
Loads Per Week	6
Is Outside Conditioned Space	No
Clothes Washer Available	Yes

Dishwasher

Dishwasher Defaults Type	Custom
Dishwasher Size	Standard
Dishwasher Efficiency	270 kWh
Annual Gas Cost	$22.23
Electric Rate	$0.12/kWh
Gas Rate	$1.09/Therm
Is Outside Conditioned Space	No
Dishwasher Available	Yes

Appliances and Controls

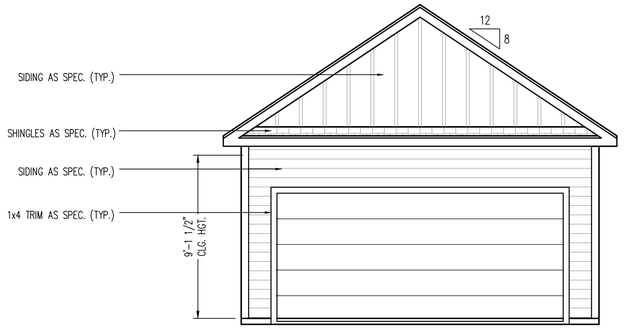
Thermostat Cooling Setpoint	* * * * 75.0
Thermostat Heating Setpoint	* * * * 70.0
Range/Oven Fuel	Electric
Convection Oven?	No
Induction Range?	No
Range/Oven Outside Conditioned Space?	No
Refrigerator Consumption	538 kWh/Year
Refrigerator Outside Conditioned Space?	No

Notes

-initial inputs - JS 02/21/2025

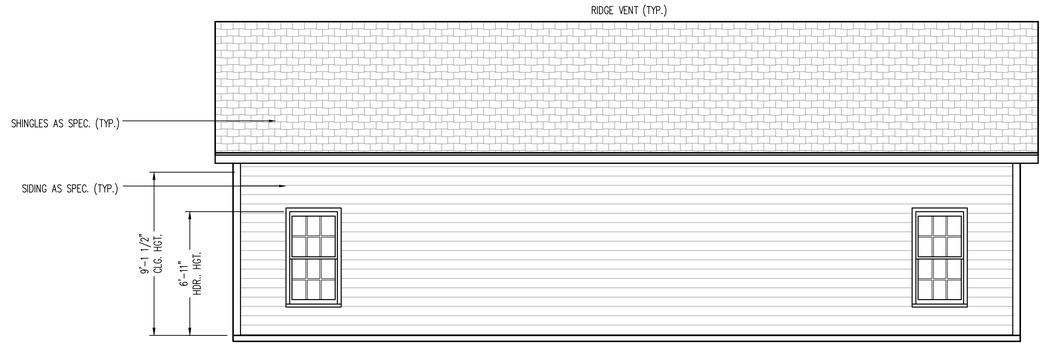
-confirm attic insulation and HVAC specs
-confirm ventilation, modeled as air cycler
-confirm cfl lighting %
-modeled to worst case orientation

Components Not Found: Foundation Wall, Foundation Wall Library List, Skylight, Mechanical Ventilation, Onsite Generation, Solar Generation, Dehumidifier, Whole House Fan, Whole House Fan Library List, HVAC Grading (Not Conducted), Ceiling Fan



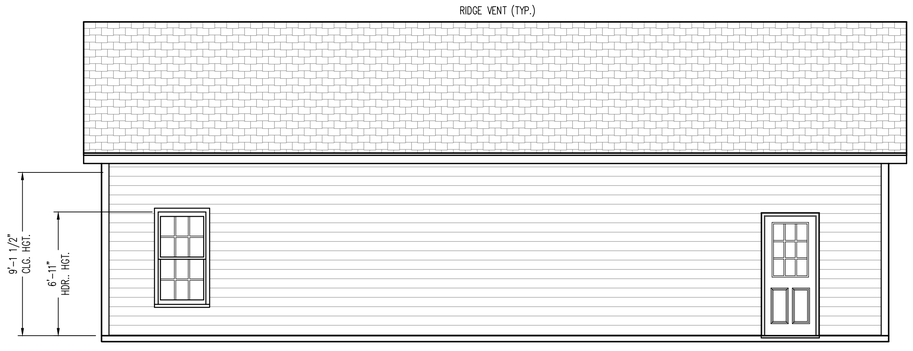
FRONT ELEVATION

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



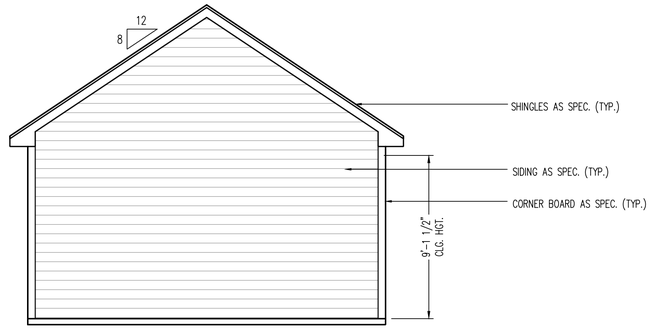
RIGHT ELEVATION

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



LEFT ELEVATION

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



REAR ELEVATION

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

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ONSITE HOMES
20' x 45'
DETACHED GARAGE

DATE: DECEMBER 28, 2025

REV.:

SCALE: AS NOTED

DRAWN BY: WG

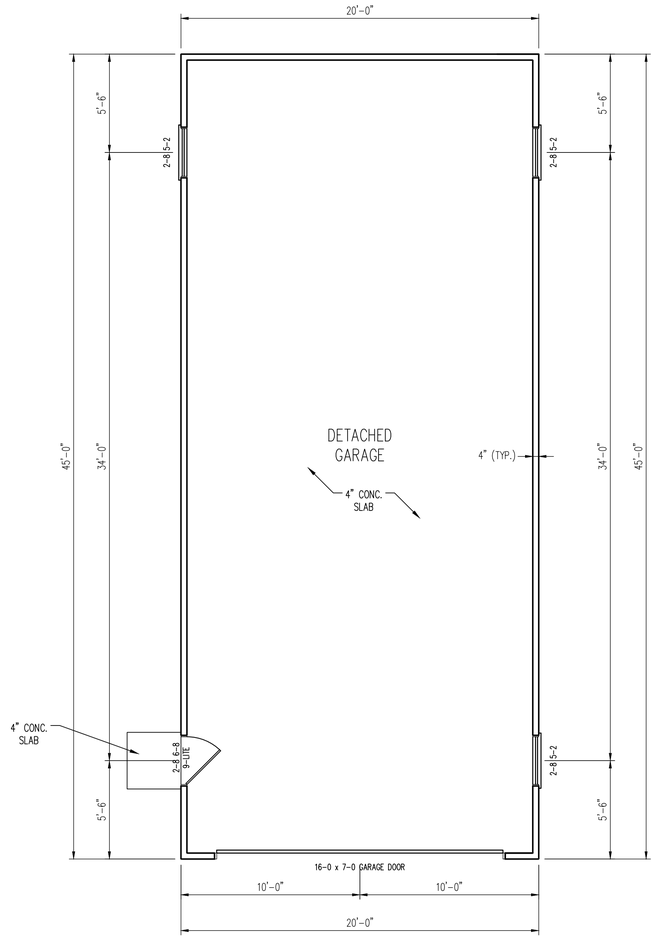
ENGINEERED BY:

REVIEWED BY:

A - ELEVATIONS

A-1

SQUARE FOOTAGE	
GARAGE FLOOR:	900 SQ. FT.



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ONSITE HOMES
20' x 45'
DETACHED GARAGE

DATE: DECEMBER 28, 2025

REV.:

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

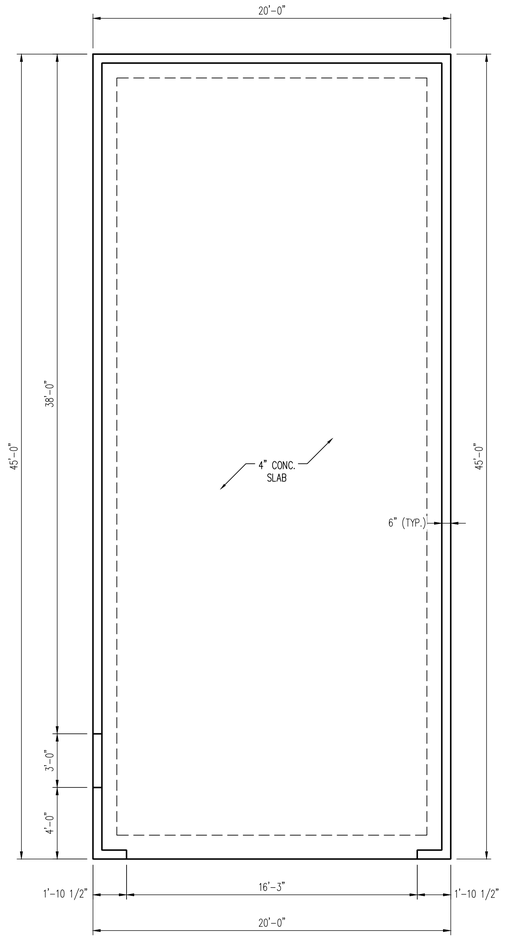
DRAWN BY: WG

ENGINEERED BY:

REVIEWED BY:

FIRST FLOOR PLAN

A-5



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ONSITE HOMES
20' x 45' DETACHED GARAGE

DATE: DECEMBER 28, 2025

REV.:

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

DRAWN BY: WG

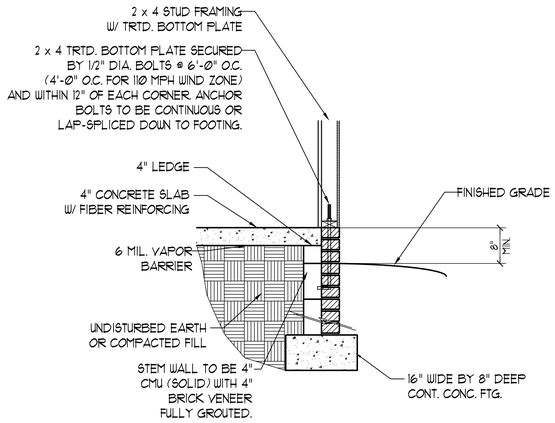
ENGINEERED BY:

REVIEWED BY:

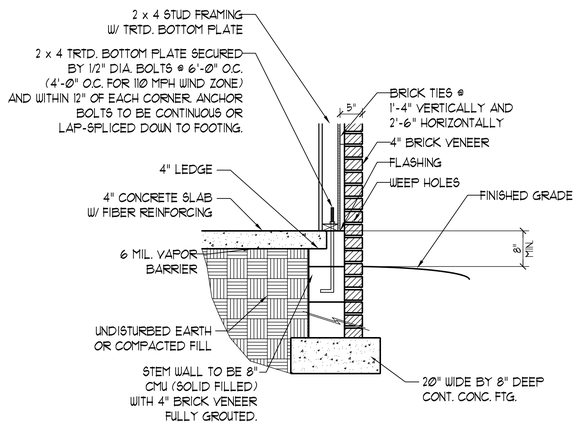
MONO SLAB FOUNDATION PLAN

S-1

90-110 MPH WIND ZONE

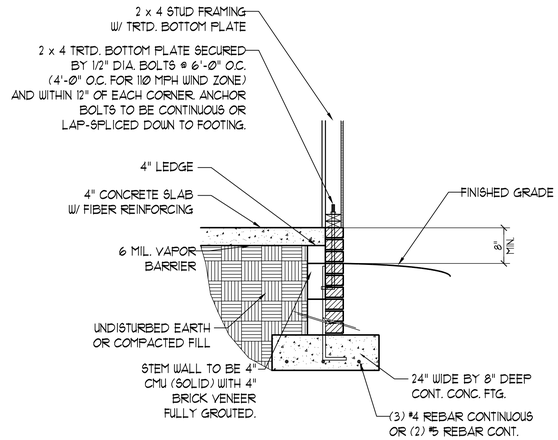


STEM WALL FDN. DETAIL
W/ SIDING VENEER



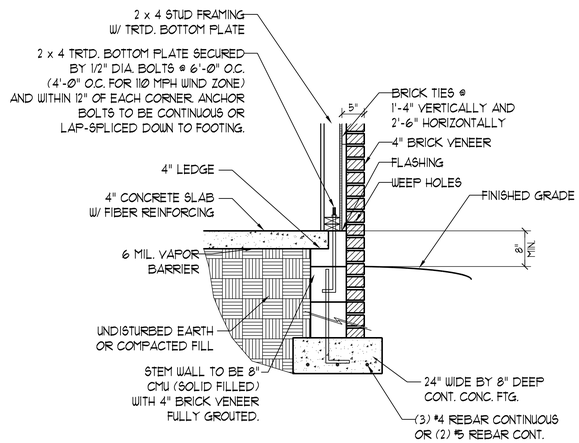
STEM WALL FDN. DETAIL
W/ BRICK VENEER

120-130 MPH WIND ZONE



STEM WALL FDN. DETAIL
W/ SIDING VENEER

FOR 120-130 MPH WIND ZONES DOUBLE SILL PLATES MUST BE INSTALLED



STEM WALL FDN. DETAIL
W/ BRICK VENEER

J.S. THOMPSON
ENGINEERING, INC
606 WADE AVE., SUITE 104 RALEIGH, NC 27605
PHONE: (919) 789-9919 FAX: (919) 789-9921
N.C. LICENSE NO.: C-1733

STANDARD STEM WALL DETAILS

DATE: APRIL 23, 2012

DRAWN BY: JST

ENGINEERED BY: JST

REVIEWED BY: MGS

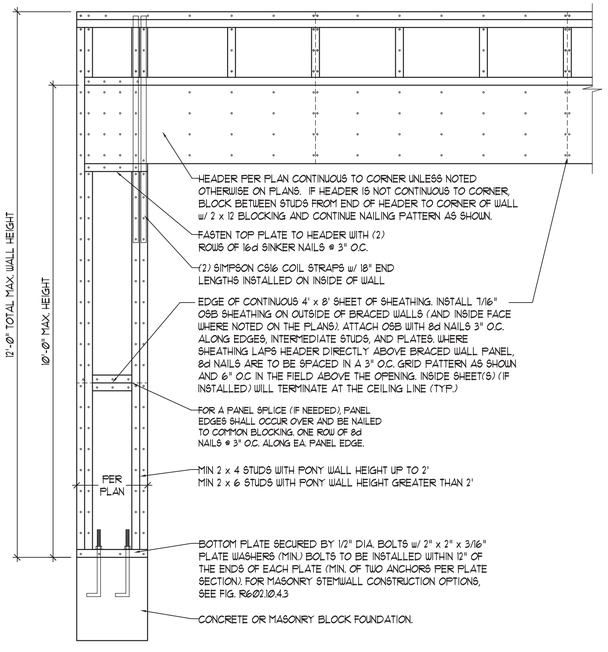
SHEET: DETAILS

STEM WALL
FDN. DETAILS

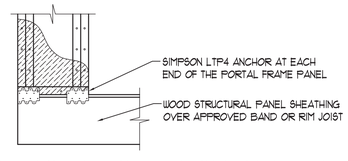
NORTH CAROLINA
PROFESSIONAL
SEAL
33736
ENGINEER
MATTHEW G. STROTHER
10/2/14

GENERAL WALL BRACING NOTES:

1. WALL BRACING DESIGNED IN ACCORDANCE WITH CHAPTER 6 OF THE 2018 NC RESIDENTIAL BUILDING CODE (NCRC). TABLES AND FIGURES REFERENCED ARE FROM THE 2018 NCRC.
2. SEE THIS SHEET FOR GENERAL DETAILS. REFER TO THE 2018 NCRC FOR ADDITIONAL INFORMATION AS NEEDED.
3. BRACED EXTERIOR WALLS SUPPORTING ROOF TRUSSES AND RAFTERS, INCLUDING STORIES BELOW THE TOP FLOOR, HAVE BEEN DESIGNED PER R602.3.5 (3). WALL SHEATHING AND FASTENERS HAVE BEEN DESIGNED TO RESIST COMBINED UPLIFT AND SHEAR FORCES IN ACCORDANCE WITH ACCEPTED ENGINEERED PRACTICE.
4. SEE STRUCTURAL SHEETS FOR BRACED WALL LOCATIONS, DIMENSIONS, HOLD DOWN TYPE AND LOCATIONS, BRACED WALL LINE KEY WITH WALL DESIGN SUMMARY OF REQUIRED/PROVIDED TOTALS FOR EACH WALL LINE AND ANY SPECIAL NOTES OR REQUIREMENTS.
5. ALL EXTERIOR WALLS ARE TO BE SHEATHED WITH CS-WSP IN ACCORDANCE WITH SECTION R602.10.3 UNLESS NOTED OTHERWISE.
6. ALL EXTERIOR AND INTERIOR WALLS TO HAVE 1/2" GYPSUM INSTALLED, WHEN NOT USING METHOD "GB", GYPSUM TO BE FASTENED PER TABLE R702.3.5, METHOD GB TO BE FASTENED PER TABLE R602.10.1
7. CS-WSP REFERS TO THE "CONTINUOUS SHEATHING - WOOD STRUCTURAL PANELS" WALL BRACING METHOD. 7/16" OSB SHEATHING IS TO BE INSTALLED ON ALL EXTERIOR WALLS ATTACHED w/ 6d COMMON NAILS OR 8d (2 1/2" LONG x Ø.113" DIAMETER) NAILS SPACED 6" O.C. ALONG PANEL EDGES AND 12" O.C. IN THE FIELD (U.N.O.).
8. GB REFERS TO THE "GYPSUM BOARD" WALL BRACING METHOD. 1/2" (MIN.) GYPSUM WALL BOARD IS TO BE INSTALLED ON BOTH SIDES OF THE BRACED WALL FASTENED WITH 1 1/4" SCREWS OR 1 5/8" NAILS SPACED 7" O.C. ALONG PANEL EDGES INCLUDING TOP AND BOTTOM PLATES AND INTERMEDIATE SUPPORTS (U.N.O.). VERIFY ALL FASTENER OPTIONS FOR 1/2" AND 5/8" GYPSUM PRIOR TO CONSTRUCTION. FOR INTERIOR FASTENER OPTIONS SEE TABLE R702.3.5. FOR EXTERIOR FASTENER OPTIONS SEE TABLE R602.3(1). EXTERIOR GB TO BE INSTALLED VERTICALLY.
9. REQUIRED BRACED WALL LENGTH FOR EACH SIDE OF THE CIRCUMSCRIBED RECTANGLE ARE INTERPOLATED PER TABLE R602. 10.3. METHOD CS-WSP CONTRIBUTES 1TS ACTUAL LENGTH, METHOD GB CONTRIBUTES .5 ITS ACTUAL LENGTH, AND METHOD PF CONTRIBUTES 1.5 TIMES ITS ACTUAL LENGTH.



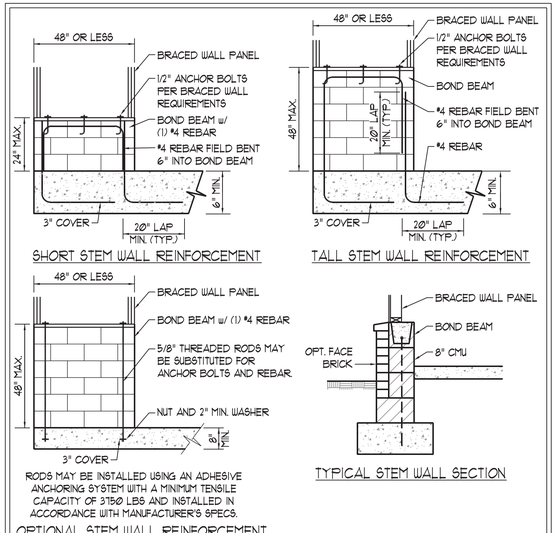
OVER CONCRETE OR MASONRY BLOCK FOUNDATION



OVER RAISED WOOD FLOOR - FRAMING ANCHOR OPTION

* APPLICABLE w/ GREATER THAN 12" KNEE WALL HEIGHTS IN CRAWL SPACE AND ABOVE FRAMED BASEMENT WALLS *

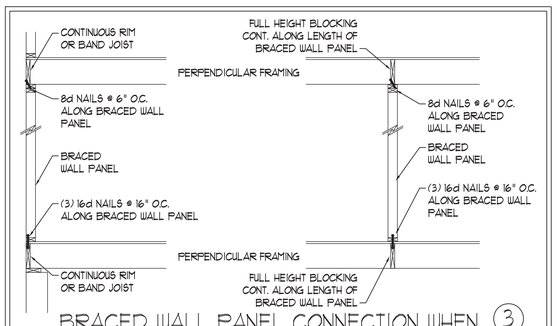
METHOD PF-PORTAL FRAME DETAIL (1)



NOTE: GROUT BOND BEAMS AND ALL CELLS WHICH CONTAIN REBAR, THREADED RODS AND ANCHOR BOLTS

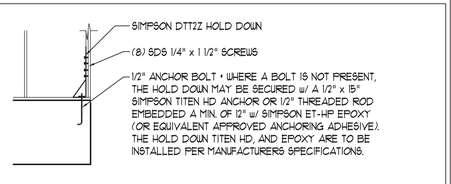
MASONRY STEM WALLS SUPPORTING BRACED WALL PANELS (2)

PER FIGURE R602.10.4.3



BRACED WALL PANEL CONNECTION WHEN PERPENDICULAR TO FLOOR/CEILING FRAMING (3)

PER FIGURE R602.10.4.4(1)

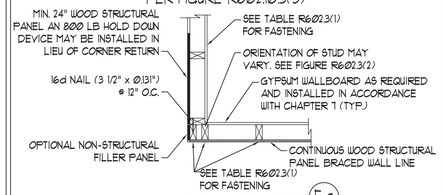


HOLD DOWN DETAIL FOR MASONRY FOUNDATION OR MONOLITHIC SLAB (4)

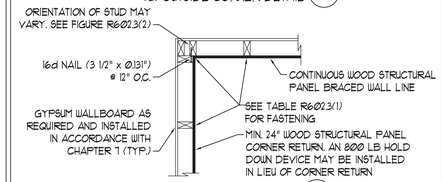
* APPLICABLE ONLY WHERE SPECIFIED ON PLAN *

TYPICAL EXTERIOR CORNER FRAMING FOR CONTINUOUS SHEATHING (5)

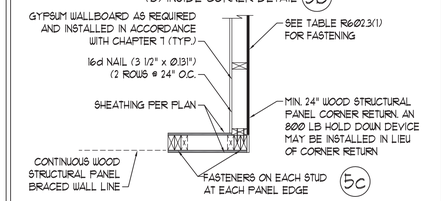
PER FIGURE R602.10.3(5)



(a) OUTSIDE CORNER DETAIL (5a)



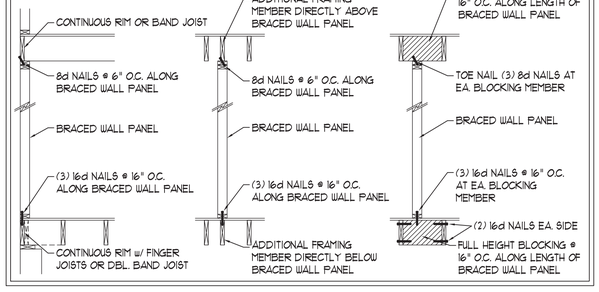
(b) INSIDE CORNER DETAIL (5b)

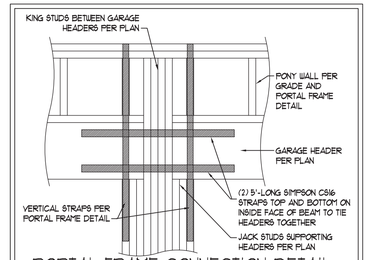


(c) GARAGE DOOR CORNER DETAIL (SEE PLAN FOR ADDITIONAL STRUCTURAL INFORMATION OR ALTERNATE CONFIGURATIONS) (5c)

BRACED WALL PANEL CONNECTION WHEN PARALLEL TO FLOOR/CEILING FRAMING (6)

PER FIG. R602.10.4.4(2)



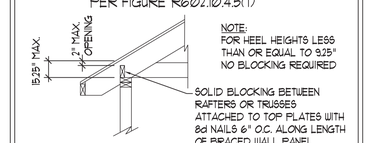


PORTAL FRAME CONNECTION DETAIL BETWEEN GARAGE DOOR HEADERS

(REFERENCE PORTAL FRAME DETAIL FOR ALL OTHER PORTAL FRAME INFORMATION) (7)

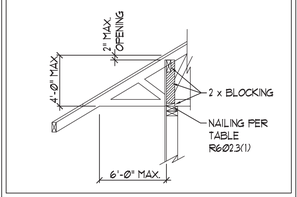
BRACED WALL PANEL CONNECTION TO PERPENDICULAR RAFTERS (8)

PER FIGURE R602.10.4.5(1)



BRACED WALL PANEL CONNECTION TO PERPENDICULAR ROOF TRUSSES (9)

PER FIGURE R602.10.4.5(3)
(OR ALTERNATIVE: FIGURE R602.10.4.5(2))



NORTH CAROLINA PROFESSIONAL SEAL 33736 ENGINEER MATTHEW G. STROTHER

9/28/2020

J.S. THOMPSON ENGINEERING, INC
606 WADE AVE., SUITE 104 RALEIGH, NC 27605
PHONE: (919) 789-9919 FAX: (919) 789-9921
N.C. LICENSE NO.: C-1733

WALL BRACING NOTES AND DETAILS

DATE: MAY 18, 2020
SCALE: 1/4" = 1'-0"
DRAWN BY: JST
ENGINEERED BY: JST

BRACED WALL NOTES AND DETAILS AND PF DETAIL

GENERAL NOTES

1. ENGINEER'S SEAL APPLIES ONLY TO STRUCTURAL COMPONENTS INCLUDING ROOF RAFTERS, HIPS, VALLEYS, RIDGES, FLOORS, WALLS, BEAMS, HEADERS, COLUMNS, CANTILEVERS, OFFSET LOAD BEARING WALLS, PIERS, GIRDER SYSTEM AND FOOTING. ENGINEER'S SEAL DOES NOT CERTIFY DIMENSIONAL ACCURACY OF ARCHITECTURAL LAYOUT INCLUDING ROOF. ENGINEER'S SEAL DOES NOT APPLY TO I-JOIST OR FLOOR/ROOF TRUSS LAYOUT DESIGN AND ACCURACY.

2. ALL CONSTRUCTION SHALL CONFORM TO THE LATEST REQUIREMENTS OF THE NORTH CAROLINA RESIDENTIAL CODE (NCRC), 2018 EDITION, PLUS ALL LOCAL CODES AND REGULATIONS. THE STRUCTURAL ENGINEER IS NOT RESPONSIBLE FOR, AND WILL NOT HAVE CONTROL OF, CONSTRUCTION MEANS, METHODS, TECHNIQUES, SEQUENCES OR PROCEDURES, OR SAFETY PRECAUTIONS AND PROGRAMS IN CONNECTION WITH THE CONSTRUCTION WORK. NOR WILL THE ENGINEER BE RESPONSIBLE FOR THE CONTRACTORS FAILURE TO CARRY OUT THE CONSTRUCTION WORK IN ACCORDANCE WITH THE CONTRACT DOCUMENTS.

3. STRUCTURAL DESIGN BASED ON THE PROVISIONS OF THE NCRC, 2018 EDITION (R301.4 - R301.7)

DESIGN CRITERIA:	LIVE LOAD (PSF)	DEAD LOAD (PSF)	DEFLECTION (IN)
ATTIC WITH LIMITED STORAGE	20	10	L/240 (L/360 W/ BRITTLE FINISHES)
ATTIC WITHOUT STORAGE	10	10	L/360
DECKS	40	10	L/360
EXTERIOR BALCONIES	40	10	L/360
FIRE ESCAPES	40	10	L/360
HANDRAILS/GUARDRAILS	200 LB OR 50 (PLF)	10	L/360
PASSENGER VEHICLE GARAGE	50	10	L/360
ROOMS OTHER THAN SLEEPING ROOM	40	10	L/360
SLEEPING ROOMS	30	10	L/360
STAIRS	40	10	L/360
WIND LOAD	(BASED ON TABLE R301.2(4) WIND ZONE AND EXPOSURE)		
GROUND SNOW LOAD: Pg	20 (PSF)		

- I-JOIST SYSTEMS DESIGNED WITH 12 PSF DEAD LOAD AND DEFLECTION (IN) OF L/480
- FLOOR TRUSS SYSTEMS DESIGNED WITH 15 PSF DEAD LOAD

4. FOR 115 AND 120 MPH WIND ZONES, FOUNDATION ANCHORAGE IS TO COMPLY WITH SECTION R403.1.6 OF THE NCRC, 2018 EDITION. FOR 130 MPH, 140 MPH, AND 150 MPH WIND ZONES, FOUNDATION ANCHORAGE IS TO COMPLY WITH SECTION 4504 OF THE NCRC, 2018 EDITION.

5. ENERGY EFFICIENCY COMPLIANCE AND INSULATION VALUES OF THE BUILDING TO BE IN ACCORDANCE WITH CHAPTER 11 OF THE NCRC, 2018 EDITION.

FOOTING AND FOUNDATION NOTES

1. FOUNDATION DESIGN BASED ON A MINIMUM ALLOWABLE BEARING CAPACITY OF 2000 PSF. CONTACT GEOTECHNICAL ENGINEER IF BEARING CAPACITY IS NOT ACHIEVED.

2. FOR ALL CONCRETE SLABS AND FOOTINGS, THE AREA WITHIN THE PERIMETER OF THE BUILDING ENVELOPE SHALL HAVE ALL VEGETATION, TOP SOIL AND FOREIGN MATERIAL REMOVED. FILL MATERIAL SHALL BE FREE OF VEGETATION AND FOREIGN MATERIAL. THE FILL SHALL BE COMPACTED TO ASSURE UNIFORM SUPPORT OF THE SLAB, AND EXCEPT WHERE APPROVED, THE FILL DEPTHS SHALL NOT EXCEED 24" FOR CLEAN SAND OR GRAVEL. A 4" THICK BASED COURSE CONSISTING OF CLEAN GRADED SAND OR GRAVEL SHALL BE PLACED. A BASE COURSE IS NOT REQUIRED WHERE A CONCRETE SLAB IS INSTALLED ON WELL-DRAINED OR SAND-GRAVEL MIXTURE SOILS CLASSIFIED AS GROUP 1, ACCORDING TO THE UNITED SOIL CLASSIFICATION SYSTEM IN ACCORDANCE WITH TABLE R405.1 OF THE NCRC, 2018 EDITION.

3. PROPERLY DEWATER EXCAVATION PRIOR TO POURING CONCRETE WHEN BOTTOM OF CONCRETE SLAB IS AT OR BELOW WATER TABLE. IF APPLICABLE, 3/4" - 1" DEEP CONTROL JOINTS ARE TO BE SAWED WITHIN 4 TO 12 HOURS OF CONCRETE FINISHING AND WALL LOCATIONS HAVE BEEN MARKED. ADJUST WHERE NECESSARY.

4. CONCRETE SHALL CONFORM TO SECTION R402.2 OF THE NCRC, 2018 EDITION. CONCRETE REINFORCING STEEL TO BE ASTM A615 GRADE 60. WELDED WIRE FABRIC TO BE ASTM A185. MAINTAIN A MINIMUM CONCRETE COVER AROUND REINFORCING STEEL OF 3" IN FOOTINGS AND 1 1/2" IN SLABS. FOR POURED CONCRETE WALLS, CONCRETE COVER FOR REINFORCING STEEL MEASURED FROM THE INSIDE FACE OF THE WALL SHALL NOT BE LESS THAN 3/4". CONCRETE COVER FOR REINFORCING STEEL MEASURED FROM THE OUTSIDE FACE OF THE WALL SHALL NOT BE LESS THAN 1 1/2" FOR #5 BARS OR SMALLER, AND NOT LESS THAN 2" FOR #6 BARS OR LARGER.

5. MASONRY UNITS TO CONFORM TO ACE 530/ASCE 5/TMS 402. MORTAR SHALL COMFORM TO ASTM C270.

6. THE UNSUPPORTED HEIGHT OF MASONRY PIERS SHALL NOT EXCEED FOUR TIMES THEIR LEAST DIMENSION FOR UNFILLED HOLLOW CONCRETE MASONRY UNITS AND TEN TIMES THEIR LEAST DIMENSION FOR SOLID OR SOLID FILLED PIERS. PIERS MAY BE FILLED SOLID WITH CONCRETE OR TYPE M OR S MORTAR. PIERS AND WALLS SHALL BE CAPPED WITH 8" OF SOLID MASONRY.

7. THE CENTER OF EACH OF THE PIERS SHALL BEAR IN THE MIDDLE THIRD OF ITS RESPECTIVE FOOTING. EACH GIRDER SHALL BEAR IN THE MIDDLE THIRD OF THE PIERS.

8. ALL CONCRETE AND MASONRY FOUNDATION WALLS ARE TO BE CONSTRUCTED IN ACCORDANCE WITH THE PROVISIONS OF SECTION R404 OF THE NCRC, 2018 EDITION OR IN ACCORDANCE WITH ACI 318, ACI 332, NCMA TR68-A OR ACE 530/ASCE 5/TMS 402. MASONRY FOUNDATION WALLS ARE TO BE REINFORCED PER TABLE R404.1.1(1), R404.1.1(2), R404.1.1(3), OR R404.1.1(4) OF THE NCRC, 2018 EDITION. CONCRETE FOUNDATION WALLS ARE TO BE REINFORCED PER TABLE R404.1.1(5) OF THE NCRC, 2018 EDITION. STEP CONCRETE FOUNDATION WALLS TO 2 x 6 FRAMED WALLS AT 16" O.C. WHERE GRADE PERMITS (UNO).

FRAMING NOTES

1. ALL FRAMING LUMBER SHALL BE #2 SPF MINIMUM (Fb = 875 PSI, Fv = 375 PSI, E = 1600000 PSI) UNLESS NOTED OTHERWISE (UNO). ALL TREATED LUMBER SHALL BE #2 SYP MINIMUM (Fb = 975 PSI, Fv =175 PSI, E = 1600000 PSI) UNLESS NOTED OTHERWISE (UNO).

2. LAMINATED VENEER LUMBER (LVL) SHALL HAVE THE FOLLOWING MINIMUM PROPERTIES: Fb =2600 PSI, Fv = 285 PSI, E = 1900000 PSI. LAMINATED STRAND LUMBER (LSL) SHALL HAVE THE FOLLOWING MINIMUM PROPERTIES: Fb = 2325 PSI, Fv = 310 PSI, E = 1550000 PSI. PARALLEL STRAND LUMBER (PSL) UP TO 7" DEPTH SHALL HAVE THE FOLLOWING MINIMUM PROPERTIES: Fc = 2500 PSI, E =1800000 PSI. PARALLEL STRAND LUMBER (PSL) MORE THAN 7" DEPTH SHALL HAVE THE FOLLOWING MINIMUM PROPERTIES: Fc = 2300 PSI, E = 2000000 PSI. INSTALL ALL CONNECTIONS PER MANUFACTURER'S SPECIFICATIONS.

3. STRUCTURAL STEEL SHALL CONFORM TO THE FOLLOWING ASTM SPECIFICATIONS
   - A. W AND WT SHAPES: ASTM A992
   - B. CHANNELS AND ANGLES: ASTM A36
   - C. PLATES AND BARS: ASTM A36
   - D. HOLLOW STRUCTURAL SECTIONS: ASTM A500 GRADE B
   - E. STEEL PIPE: ASTM A53, GRADE B, TYPE E OR S

4. STEEL BEAMS SHALL BE SUPPORTED AT EACH END WITH A MINIMUM BEARING LENGTH OF 3 1/2" AND FULL FLANGE WIDTH (UNO). PROVIDE SOLID BEARING FROM BEAM SUPPORT TO FOUNDATION. BEAMS SHALL BE ATTACHED AT THE BOTTOM FLANGE TO EACH SUPPORT AS FOLLOWS (UNO):

   A. WOOD FRAMING — (2) 1/2" DIA. x 4" LONG LAG SCREWS
   B. CONCRETE — (2) 1/2" DIA. x 4" WEDGE ANCHORS
   C. MASONRY (FULLY GROUTED) — (2) 1/2" DIA. x 4" LONG SIMPSON TITEN HD ANCHORS

   LATERAL SUPPORT IS CONSIDERED ADEQUATE PROVIDING THE JOISTS ARE TOE NAILED TO THE 2x NAILER ON TOP OF THE STEEL BEAM, AND THE 2x NAILER IS SECURED TO THE TOP OF THE STEEL BEAM W/ (2) ROWS OF SELF TAPPING SCREWS @ 16" O.C. OR (2) ROWS OF 1/2" DIAMETER BOLTS @ 16" O.C. IF 1/2" BOLTS ARE USED TO FASTEN THE NAILER, THE STEEL BEAM SHALL BE FABRICATED W/ (2) ROWS OF 9/16" DIAMETER HOLES @ 16" O.C.

5. SQUARES DENOTE POINT LOADS WHICH REQUIRE SOLID BLOCKING TO GIRDER OR FOUNDATION. SHADED SQUARES DENOTE POINT LOADS FROM ABOVE WHICH REQUIRE SOLID BLOCKING TO SUPPORTING MEMBER BELOW.

6. ALL LOAD BEARING HEADERS TO CONFORM TO TABLE R602.7.1(1) AND R602.7.1(2) OF THE NCRC, 2018 EDITION OR BE (2) 2 x 6 WITH (1) JACK AND (1) KING STUD EACH END (UNO), WHICHEVER IS GREATER ALL HEADERS TO BE SECURED TO EACH JACK STUD WITH (4) 8d NAILS. ALL BEAMS TO BE SUPPORTED WITH (2) STUDS AT EACH BEARING POINT (UNO). INSTALL KING STUDS PER SECTION R602.7.5 OF THE NORTH CAROLINA RESIDENTIAL CODE, 2018 EDITION.

7. ALL BEAMS, HEADERS, OR GIRDER TRUSSES PARALLEL TO WALL ARE TO BEAR FULLY ON (1) JACK OR (2) STUDS MINIMUM OR THE NUMBER OF JACKS OR STUDS NOTED. ALL BEAMS OR GIRDER TRUSSES PERPENDICULAR TO WALL AND SUPPORTED BY (3) STUDS OR LESS ARE TO HAVE 1 1/2" MINIMUM BEARING (UNO). ALL BEAMS OR GIRDER TRUSSES PERPENDICULAR TO WALL AND SUPPORTED BY MORE THAN (3) STUDS OR OTHER NOTED COLUMN ARE TO BEAR FULLY ON SUPPORT COLUMN FOR ENTIRE WALL DEPTH (UNO). BEAM ENDS THAT BUTT INTO ONE ANOTHER ARE TO EACH BEAR EQUAL LENGTHS (UNO).

8. FLITCH BEAMS SHALL BE BOLTED TOGETHER USING 1/2" DIAMETER BOLTS (ASTM A307) WITH WASHERS PLACED AT THREADED END OF BOLT. BOLTS SHALL BE SPACED AT 24" CENTERS (MAXIMUM), AND STAGGERED AT TOP AND BOTTOM OF BEAM (2" EDGE DISTANCE), WITH (2) BOLTS LOCATED AT 6" FROM EACH END (UNO).

9. ALL I-JOIST OR TRUSS LAYOUTS ARE TO BE IN COMPLIANCE WITH THE OVERALL DESIGN SPECIFIED ON THE PLANS. ALL DEVIATIONS ARE TO BE BROUGHT TO THE ATTENTION OF THE ENGINEER OF RECORD PRIOR TO INSTALLATION.

10. BRACED WALL PANELS SHALL BE CONSTRUCTED ACCORDING TO THE NORTH CAROLINA RESIDENTIAL CODE 2018 EDITION WALL BRACING CRITERIA. THE AMOUNT, LENGTH, AND LOCATION OF BRACING SHALL COMPLY WITH ALL APPLICABLE TABLES IN SECTION R602.10.

11. PROVIDE DOUBLE JOIST UNDER ALL WALLS PARALLEL TO FLOOR JOISTS. PROVIDE SUPPORT UNDER ALL WALLS PARALLEL TO FLOOR TRUSSES OR I-JOISTS PER MANUFACTURER'S SPECIFICATIONS. INSTALL BLOCKING BETWEEN JOISTS OR TRUSSES FOR POINT LOAD SUPPORT FOR ALL POINT LOADS ALONG OFFSET LOAD LINES.

12. FOR ALL HEADERS SUPPORTING BRICK VENEER THAT ARE LESS THAN 8'-0" IN LENGTH, REST A 6" x 4" x 5/16" STEEL ANGLE WITH 6" MINIMUM EMBEDMENT AT SIDES FOR BRICK SUPPORT (UNO). FOR ALL HEADERS 8'-0" AND GREATER IN LENGTH, BOLT A 6" x 4" x 5/16" STEEL ANGLE TO HEADER WITH 1/2" LAG SCREWS AT 12" O.C. STAGGERED FOR BRICK SUPPORT. FOR ALL BRICK SUPPORT AT ROOF LINES, BOLT A 6" x 4" x 5/16" STEEL ANGLE TO (2) 2 x 10 BLOCKING INSTALLED W/ (4) 12d NAILS EA. PLY BETWEEN WALL STUDS WITH (2) ROWS OF 1/2" LAG SCREWS AT 12" O.C. STAGGERED AND IN ACCORDANCE WITH SECTION R703.8.2.1 OF THE NCRC, 2018 EDITION.

13. FOR STICK FRAMED ROOFS: CIRCLES DENOTE (3) 2 x 4 POSTS FOR ROOF MEMBER SUPPORT. HIP SPLICES ARE TO BE SPACED A MINIMUM OF 8'-0". FASTEN MEMBERS WITH THREE ROWS OF 12d NAILS AT 16" O.C. FRAME DORMER WALLS ON TOP OF DOUBLE OR TRIPLE RAFTERS AS SHOWN (UNO).

14. FOR TRUSSED ROOFS: FRAME DORMER WALLS ON TOP OF 2 x 4 LADDER FRAMING AT 24" O.C. BETWEEN ADJACENT ROOF TRUSSES. STICK FRAME OVER-FRAMED ROOF SECTIONS WITH 2 x 8 RIDGES, 2 x 6 RAFTERS AT 16" O.C. AND FLAT 2 x 10 VALLEYS (UNO).

15. ALL 4 x 4 AND 6 x 6 POSTS TO BE INSTALLED WITH 7000 LB CAPACITY UPLIFT CONNECTORS TOP AND BOTTOM (UNO.) POSTS MAY BE SECURED USING ONE SIMPSON H6 OR LTS12 UPLIFT CONNECTOR FASTENED TO THE BAND AT THE BOTTOM AND THE BEAM AT THE TOP OF EACH POST. ONE 16" SECTION OF SIMPSON CS16 COIL STRAPPING WITH (8) 8d HDG NAILS AT EACH END MAY BE USED IN LIEU OF EACH TWIST STRAP IF DESIRED. FOR MASONRY OR CONCRETE FOUNDATION USE SIMPSON POST BASE.

NORTH CAROLINA PROFESSIONAL SEAL 33736 ENGINEER MATTHEW G. STROTHER

9/28/2020

J.S. THOMPSON ENGINEERING, INC
606 WADE AVE., SUITE 104 RALEIGH, NC 27605
PHONE: (919) 789-9919 FAX: (919) 789-9921
N.C. LICENSE NO.: C-1733

STANDARD STRUCTURAL NOTES

DATE: OCTOBER 29, 2018

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

DRAWN BY: JES

ENGINEERED BY: JST

SHEET:

STRUCTURAL NOTES

North Carolina 2018 - R402.1.5 Total UA

Property
, NC 27506
Model: Riverbirch

Organization
Southern Energy Manageme
Justin Smith

Inspection Status
Results are projected

Template - OnSite Homes - Wakefield 390
Riverbirch slab

Builder
OnSite Homes

This report is based on a proposed design and does not confirm field enforcement of design elements.

Building UA

Elements	NC Reference	As Designed
Ceilings	77.3	68.0
Above-Grade Walls	241.1	186.3
Windows, Doors and Skylights	198.6	186.0
Slab Floor:	103.5	135.7
Framed Floors	22.9	26.9
Foundation Walls	0.0	0.0
Rim Joists	8.2	6.6
Overall UA (Design must be equal or lower):	**651.6**	**609.5**

Requirements

✓	R402.1.5	Total UA alternative compliance passes by 6.5%.	The proposed home meets the UA requirement by 6.5%
✓	R402.3.2	Average SHGC: 0.27 Max SHGC: 0.30	Average SHGC of 0.27 is greater than the maximum of 0.30.
✓	R402.4.2.2	Air Leakage Testing	Air sealing is 4.80 ACH at 50 Pa. It must not exceed 5.00 ACH at 50 Pa.
✓	R402.5	Area-weighted average fenestration SHGC	Area-weighted average fenestration SHGC is 0.27. The maximum allowed value is [No Limit].
✓	R402.5	Area-weighted average fenestration U-Factor	
✓	R404.1	Lighting Equipment	
✓	Mandatory Checklist	Mandatory code requirements that are not checked by Ekotrope must be met.	2015 IECC Mandatory Checklist must be checked as complete.
✓	R403.3.1	Duct Insulation	Duct insulation meets the requirements specified in North Carolina 2018 Code Section 403.3.1.
✓	403.3.3	Duct Testing	

Design exceeds requirements for North Carolina 2018 Prescriptive compliance by 6.5%.

Name: Justin Smith
Signature: Justin Smith
Organization: Southern Energy Management
Digitally signed: 2/21/25 at 2:52 PM

Building Summary

Property
, NC 27506
Model: Riverbirch

Template - OnSite Homes - Wakefield 3900 plan slab - Riverbirch slab

Organization
Southern Energy Management
Justin Smith

Builder
OnSite Homes

Inspection Status
Results are projected

General Building Information

Number Of Bedrooms: 4	Number Of Floors: 2
Conditioned Floor Area [sq. ft.]: 3,900	Has Electric Vehicle Ready Space: No
Unconditioned, attached garage? Yes	Conditioned Volume [cu. ft.]: 36,594
Total Units in Building: 1	Residence Type: Single family detached
Number of Floors in Building: N/A	Floor Number: N/A
Model: Riverbirch	Community:
RESNET/IECC 2006-2018 Climate Zone: 4A	IECC 2021 Climate Zone: 3A

Envelope Components

Slab

Name	Library Type	Perimeter	Floor Grade	Carpet R	Exposed Masonry Area	Surface Area	Location	Enclosing
slab	Uninsulated	210	On Grade	1	0	2,089.0 ft²	Exposed Exterior	Conditioned Space

Slab Library List

Name	Wall Construction Type	Slab Completely Insulated?	Underslab Insulation Width [ft]	Perimeter Insulation Depth [ft]	Perimeter Insulation R Value	Perimeter Insulation Is Exterior	Thermal Break	Effective R-value
Uninsulated	Wood Frame / Other	No	0	0	0	No	No	0.00

Framed Floor

Name	Library Type	Carpet R	Floor Grade	Surface Area	Location	Effective R-value
over garage	R 19, 16"OC G1 Hardwood	0	Above Grade	488.0 ft²	Unconditioned, attached garage	18.155

Rim Joist

Name	Library Type	Surface Area	Location	Effective Insulation R-value
1st floor ambient	R 19 G1, 16"OC	104.0 ft²	Exposed Exterior	17.30
1st floor garage	R 19 G1, 16"OC	43.0 ft²	Unconditioned, attached garage	17.30

Wall

Name	Library Type	Surface Color	Solar Absorptance	Surface Area	Location	Effective R-value
1st floor ambient	R 19 FG G1 16" O.C	Medium	0.75	1,502.0 ft²	Exposed Exterior	16.805
1st floor garage	R 19 FG G1 16" O.C	Medium	0.75	388.0 ft²	Unconditioned, attached garage	16.805
2nd floor ambient	R 19 FG G1 16" O.C	Medium	0.75	829.0 ft²	Exposed Exterior	16.805
2nd floor attic	R 19 FG G1 16" O.C	Medium	0.75	979.0 ft²	Attic	16.805

Glazing

Name	Library Type	Wall Assignment	Foundation Wall Assignment	Is Operable	Overhang Depth	Overhang Ft To Top	Overhang Ft To Bottom	Orientation	Surface Area
front 2nd unshaded	35/27	2nd floor ambient		Yes	0	0	0	West	76.0 ft²
front shaded	35/27	1st floor ambient		Yes	7	1	6	West	66.0 ft²

Building Summary

Property
, NC 27506
Model: Riverbirch

Project & Plan
Template - OnSite Homes - Wakefield 3900 plan slab - C.
Riverbirch slab

Organization
Southern Energy Management
Justin Smith

Inspection Status
Results are projected

Builder
OnSite Homes

Name	Library Type	Wall Assignment	Foundation Wall Assignment	Is Operable	Overhang Depth	Overhang Ft To Top	Overhang Ft To Bottom	Orientation	Surface Area
front unshaded	35/27	1st floor ambient		Yes	0	0	0	West	30.0 ft²
left 2nd unshaded	35/27	2nd floor ambient		Yes	0	0	0	North	30.0 ft²
left unshaded	35/27	1st floor ambient		Yes	0	0	0	North	15.0 ft²
rear 2nd unshaded	35/27	2nd floor ambient		Yes	0	0	0	East	63.0 ft²
rear shaded	35/27	1st floor ambient		Yes	10	2	9	East	90.3 ft²
rear unshaded	35/27	1st floor ambient		Yes	0	0	0	East	60.0 ft²
right shaded	35/27	1st floor ambient		Yes	20	1	6	South	15.0 ft²
right unshaded	35/27	1st floor ambient		Yes	0	0	0	South	38.0 ft²

Glazing Library List

Name	Shgc	U-factor
35/27	0.27	0.350

Opaque Door

Name	Library Type	Wall Assignment	Foundation Wall Assignment	Emittance	Solar Absorptance	Surface Color	Surface Area	Location	Effective R-value
attic doors	Fiberglass R-5	2nd floor attic		0.9	0.75	Medium	30.0 ft²	Attic	0.200
front entry	Fiberglass R-5	1st floor ambient		0.9	0.75	Medium	36.0 ft²	Exposed Exterior	0.200
garage entry	Fiberglass R-5	1st floor garage		0.9	0.75	Medium	18.0 ft²	Unconditioned, attached garage	0.200

Roof Insulation

Name	Library Type	Attic Exterior Area [ft²]	Clay or Concrete Roof Tiles	Does the Roof have Eaves?	Roof Slope	Ceiling Framing Height [in.]	Eave Height [in.]	Eave Length [in.]	Surface Color	Solar Absorptance	Surface Area	Location
ceiling	R 38 Attic BLOWN FG G1 2x6 16"OC NO Radiant Barrier	3,788.19	No	No	N/A	N/A	N/A	N/A	Dark	0.9	2,577.0 ft²	Attic

Roof Insulation Library List

Name	Has Radiant Barrier	Effective R-value
R 38 Attic BLOWN FG G1 2x6 16"OC NO Radiant Barrier	No	37.887

Whole House Infiltration

Infiltration	Measurement Type	Shelter Class
2927 CFM at 50 Pa	Blower-door tested	4

Mechanicals, Lights & Water

Lighting

% Interior Fluorescent Lighting	% Interior LED Lighting	% Exterior Fluorescent Lighting	% Exterior LED Lighting	% Garage Fluorescent Lighting	% Garage LED Lighting
0	100	0	0	0	0

Building Summary

Property
, NC 27506
Model: Riverbirch

Project & Plan
Template - OnSite Homes - Wakefield 3900 plan slab - C.
Riverbirch slab

Organization
Southern Energy Management
Justin Smith

Inspection Status
Results are projected

Builder
OnSite Homes

Conditioning Equipment

Name	Library Type	Serial Number	Heating Percent Load	Cooling Percent Load	Hot Water Percent Load	Location
water heater	z 50 gal. 0.92 EF Elec		0%	0%	100%	Unspecified
whole house heat pump	z 48k 14.3 SEER2 7.5 HSPF2		100%	100%	0%	Unspecified

Equipment Type: z 48k 14.3 SEER2 7.5 HSPF2

Equipment Type	Air Source Heat Pump
Fuel Type	Electric
Distribution Type	Forced Air
Motor Type	ECM (Variable Speed)
Heat Pump System Type	Split System
Heating Efficiency	7.5 HSPF2
Heating Capacity [kBtu/h]	48
Backup Fuel Type	Electric
Switchover Temperature [°F]	0
Backup Heating Efficiency	1 COP
Use default Supplemental Heat	Yes
Cooling Efficiency	14.3 SEER2
Cooling Capacity [kBtu/h]	48

Equipment Type: z 50 gal. 0.92 EF Elec

Equipment Type	Residential Water Heater
Fuel Type	Electric
Distribution Type	Hydronic Delivery (Radiant)
Hot Water Efficiency	0.92 Energy Factor
Tank Capacity (gal.)	50
Hot Water Capacity [kBtu/h]	40
Recovery Efficiency	0.98

Distribution System

Distribution Type	Forced Air
Heating Equipment	whole house heat pump
Cooling Equipment	whole house heat pump
Sq. Feet Served	3,900
# Return Grilles	4
Supply Duct R Value	8
Return Duct R Value	8
Supply Duct Area [ft²]	1053
Return Duct Area [ft²]	780
Leakage to Outdoors	156 CFM @ 25Pa (4 / 100 ft²)
Total Leakage	156 CFM25
Total Leakage Duct Test Conditions	Post-Construction
Use Default Flow Rate	Yes
Duct 1	
Duct Location	Attic (well vented)
Percent Supply Area	60
Percent Return Area	60
Duct 2	
Duct Location	Conditioned Space
Percent Supply Area	40
Percent Return Area	40

Water Distribution

Water Fixture Type	Standard
Use Default Hot Water Pipe Length	No
Hot Water Pipe Length [ft]	108
At Least R3 Pipe Insulation?	No
Hot Water Recirculation System?	No
Drain Water Heat Recovery?	No

Appliances & Notes

Building Summary

Property
, NC 27506
Model: Riverbirch

Project & Plan
Template - OnSite Homes - Wakefield 3900 plan slab - C.
Riverbirch slab

Organization
Southern Energy Management
Justin Smith

Inspection Status
Results are projected

Builder
OnSite Homes

Clothes Dryer

Cef	3.01
Fuel Type	Electric
Field Utilization	Timer Controls
Is Outside Conditioned Space	No
Clothes Dryer Available	Yes
Defaults Type	HERS Reference
Is Ventless	No
Is Heat Pump	No

Clothes Washer

Label Energy Rating	153 kWh/Year
Annual Gas Cost	$12.00
Electric Rate	$0.11/kWh
Gas Rate	$1.22/Therm
Capacity	3.31
Imef	2.1547
Defaults Type	Custom
Load Type	Front-load
Loads Per Week	6
Is Outside Conditioned Space	No
Clothes Washer Available	Yes

Dishwasher

Dishwasher Defaults Type	Custom
Dishwasher Size	Standard
Dishwasher Efficiency	270 kWh
Annual Gas Cost	$22.23
Electric Rate	$0.12/kWh
Gas Rate	$1.09/Therm
Is Outside Conditioned Space	No
Dishwasher Available	Yes

Appliances and Controls

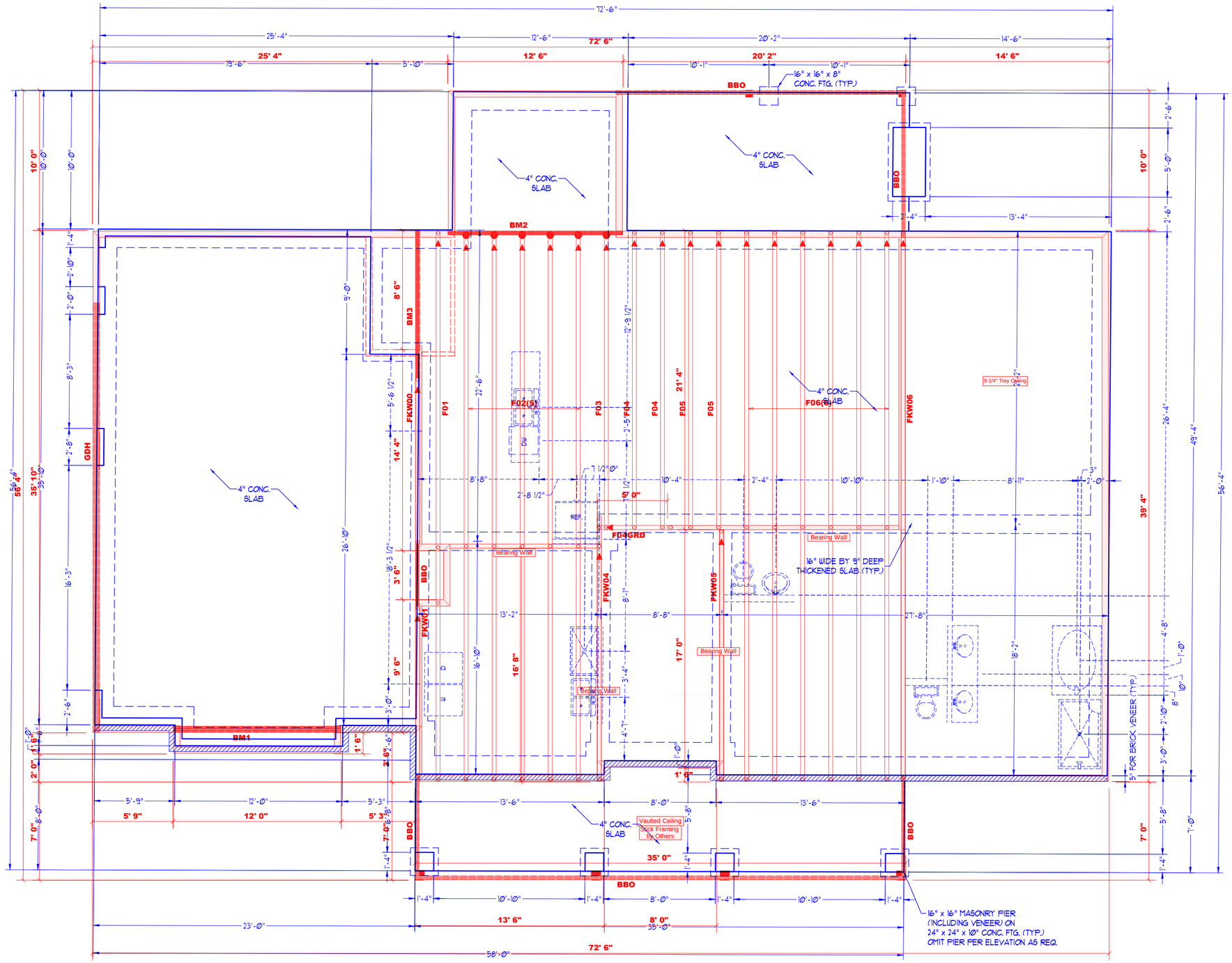
Thermostat Cooling Setpoint	* * * * 75.0
Thermostat Heating Setpoint	* * * * 70.0
Range/Oven Fuel	Electric
Convection Oven?	No
Induction Range?	No
Range/Oven Outside Conditioned Space?	No
Refrigerator Consumption	538 kWh/Year
Refrigerator Outside Conditioned Space?	No

Notes

-initial inputs - JS 02/21/2025

-confirm attic insulation and HVAC specs
-confirm ventilation, modeled as air cycler
-confirm cfl lighting %
-modeled to worst case orientation

Components Not Found: Foundation Wall, Foundation Wall Library List, Skylight, Mechanical Ventilation, Onsite Generation, Solar Generation, Dehumidifier, Whole House Fan, Whole House Fan Library List, HVAC Grading (Not Conducted), Ceiling Fan



Products				
PlotID	Length	Product	Plies	Net Qty
BM1	12' 0"	1-3/4"x 11-7/8" LVL Kerto-S	3	3
BM2	13' 0"	1-3/4"x 18" LVL Kerto-S	2	2
BM3	11' 0"	1-3/4"x 18" LVL Kerto-S	2	2
GDH	31' 0"	1-3/4"x 11-7/8" LVL Kerto-S	3	3

Connector Information					Nail Information	
Sym	Product	Manuf	Qty	Supported Member	Header	Truss
●	JUS414	USP	6	NA	16d/3-1/2"	16d/3-1/2"

Dimension Notes
1. All exterior wall to wall dimensions are to face of sheathing unless noted otherwise
2. All interior wall dimensions are to face of stud unless noted otherwise
3. All exterior wall to truss dimensions are to face of stud unless noted otherwise

All Walls Shown Are Considered Load Bearing

▲ = Denotes Left End of Truss
(Reference Engineered Truss Drawing)

C:\Users\xbox\OneDrive\CAD Projects\Onsite Homes\Wakefield\Wakefield_GL_2-16-21.dwg, 5/5/2025 8:07:22 AM

COMTECH
ROOF & FLOOR TRUSSES & BEAMS
Reilly Road Industrial Park
Fayetteville, N.C. 28309
Phone: (910) 864-8787
Fax: (910) 864-4444

Bearing reactions less than or equal to 3000# are deemed to comply with the prescriptive Code requirements. The contractor shall refer to the attached Tables (derived from the prescriptive Code requirements) to determine the minimum foundation size and number of wood studs required to support reactions greater than 3000# but not greater than 15000#. A registered design professional shall be retained to design the support system for any reaction that exceeds those specified in the attached Tables. A registered design professional shall be retained to design the support system for all reactions that exceed 15000#.

Signature Hampton Horrocks

Hampton Horrocks

LOAD CHART FOR JACK STUDS

(BASED ON TABLES R502.5(1) & (b))

NUMBER OF JACK STUDS REQUIRED @ EA END OF HEADER/GIRDER

END REACTION (3# TO)	REQ'D STUDS FOR (2) PLY HEADER	END REACTION (4# TO)	REQ'D STUDS FOR (3) PLY HEADER	END REACTION (5# TO)	REQ'D STUDS FOR (4) PLY HEADER
1700	1	2550	1	3400	1
3400	2	5100	2	6800	2
5100	3	7650	3	10200	3
6800	4	10200	4	13600	4
8500	5	12750	5	17000	5
10200	6	15300	6		
11900	7				
13600	8				
15300	9				

BUILDER	Onsite Homes, LLC
JOB NAME	Lot 8 Graham Mill Lane
PLAN	Wakefield
SEAL DATE	N/A
QUOTE #	Quote #
JOB #	J0325-1553
CITY / CO.	Fayettville / Moore
ADDRESS	Lot 8 Graham Mill Lane
MODEL	Roof
DATE REV.	04/03/25
DRAWN BY	Hampton Horrocks
SALES REP.	Marshall Naylor

THIS IS A TRUSS PLACEMENT DIAGRAM ONLY.
These trusses are designed as individual building components to be incorporated into the building design at the specification of the building designer. See individual design sheets for each truss design identified on the placement drawing. The building designer is responsible for temporary and permanent bracing of the roof and floor system and for the overall structure. The design of the truss support structure including headers, beams, walls, and columns is the responsibility of the building designer. For general guidance regarding bracing, consult BCSI-B1 and BCSI-B3 provided with the truss delivery package or online @ sbcindustry.com