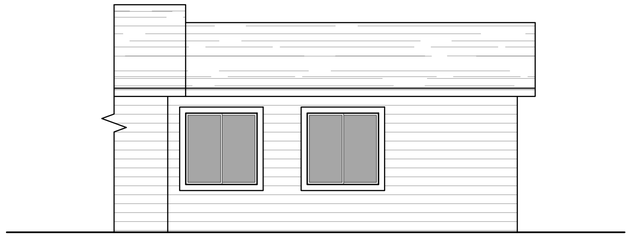
ANNA ROBERTS



BUILDING SUMMARY

BUILDING DIMENSIONS

BUILDING WIDTH	20'-0"
BUILDING DEPTH	20'-0"
BUILDING HEIGHT	11'-9"
FROST DEPTH	12"

SQUARE FOOTAGE

ADDITION AREA:	400 S.F.

DESIGN CRITERIA

2018	NORTH CAROLINA RESIDENTIAL CODE
2018	NORTH CAROLINA FIRE CODE
2018	NORTH CAROLINA MECHANICAL CODE
2018	NORTH CAROLINA PLUMBING CODE
2020	NORTH CAROLINA ELECTRICAL CODE
2018	NORTH CAROLINA ENERGY CONSERVATION CODE

GENERAL NOTES

PROVIDE 5% MINIMUM SLOPE FOR 10'-0" AWAY ON ALL SIDES OF HOUSE

PROJECT NARRATIVE

This project involves a 20-foot by 20-foot master suite addition to an existing single-family residence in North Carolina. The layout has been thoughtfully designed to provide a comfortable and private retreat. Upon entry from the main house, the new space opens into a generously sized bedroom area, proportioned to easily accommodate a king-size bed, nightstands, and additional bedroom furniture. Adjacent to the sleeping area is a large walk-in closet offering ample storage space, conveniently positioned to allow easy access from both the bedroom and bathroom.

The attached master bathroom is laid out for both function and comfort. A freestanding bathtub is centered as a focal point of the room, paired with a separate glass-enclosed standing shower. A double vanity runs along one wall, providing generous counter space and storage for two users. A private water closet (toilet room) is tucked behind a separate door for added privacy. Circulation between the spaces is smooth and intuitive, with thoughtful placement of doors and fixtures to maximize usability.

The addition is designed to integrate seamlessly with the existing structure. Exterior finishes, roof pitch, and window styles have been selected to match the home's current appearance, creating a unified look. Interior ceiling heights, flooring transitions, and utility integration will ensure that the new space feels like a natural extension of the home.

SHEET INDEX

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
07/14/2025
Harnett COUNTY NORTH CAROLINA

EVOLUTION DRAFTING LLC
65 W WARREN AVE
COLORADO CITY, AZ 86021
PHONE: (435) 216-1353
OFFICE@EVOLUTIONDRAFTING.COM

PROPOSED ADDITION FOR ANNA ROBERTS

347 SHUE RD
BROADWAY / LEE COUNTY:
NC 27505

ISSUE DATES:
05/15/2025

DRAWN BY:
D.T.

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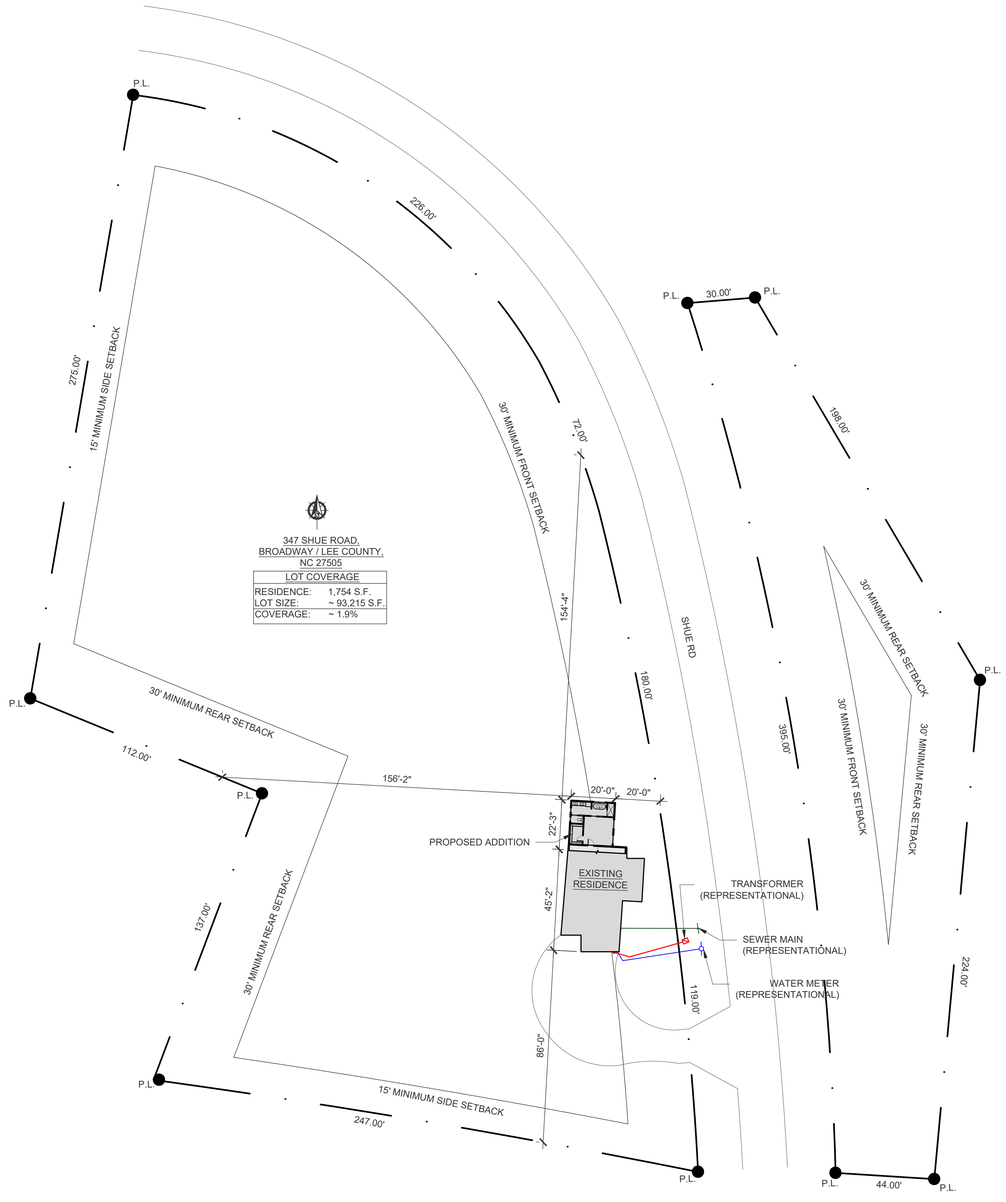
COVER PAGE



347 SHUE ROAD,
BROADWAY / LEE COUNTY,
NC 27505

LOT COVERAGE	
RESIDENCE:	1,754 S.F.
LOT SIZE:	~ 93,215 S.F.
COVERAGE:	~ 1.9%

SITE PLAN

SCALE: 1/32" = 1'-0"

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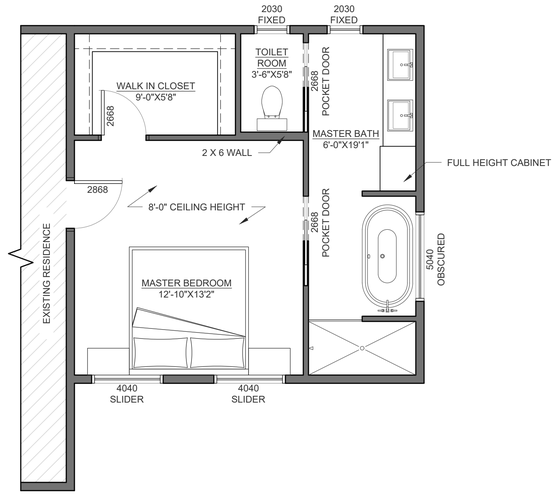
SITE PLAN



FLOOR LAYOUT PLAN

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

GENERAL NOTES

1. 2X6 EXTERIOR FRAMING.
   2X4 INTERIOR FRAMING UNLESS NOTED OTHERWISE ON PLAN.
2. 8'-1" WALL HEIGHT THROUGHOUT UNLESS NOTED OTHERWISE ON PLAN.
3. 6'-8" WINDOW HEADER HEIGHT,
   & 6'-8" TALL INTERIOR & EXTERIOR DOORS UNLESS NOTED OTHERWISE ON PLAN.
4. ENSURE THAT ALL OPENINGS PASSING THROUGH FIREWALLS AND ROOF SURFACES ARE PROPERLY SEALED WITH FLASHING AND CAULKING.
5. REFER TO THE STRUCTURAL DRAWINGS TO DETERMINE THE SIZE AND PLACEMENT OF ALL STRUCTURAL COMPONENTS

BUILDING AREAS

TOTAL ADDITION AREA: 400 S.F.

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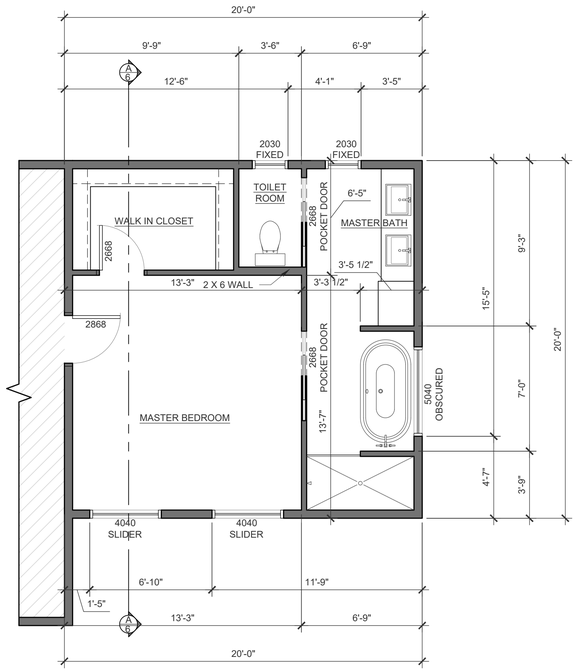
FLOOR LAYOUT PLAN



FLOOR DIMENSION PLAN

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

GENERAL NOTES

1. 2X6 EXTERIOR FRAMING.
   2X4 INTERIOR FRAMING UNLESS NOTED OTHERWISE ON PLAN.
2. 8'-1" WALL HEIGHT THROUGHOUT UNLESS NOTED OTHERWISE ON PLAN.
3. 6'-8" WINDOW HEADER HEIGHT,
   & 6'-8" TALL INTERIOR & EXTERIOR DOORS UNLESS NOTED OTHERWISE ON PLAN.
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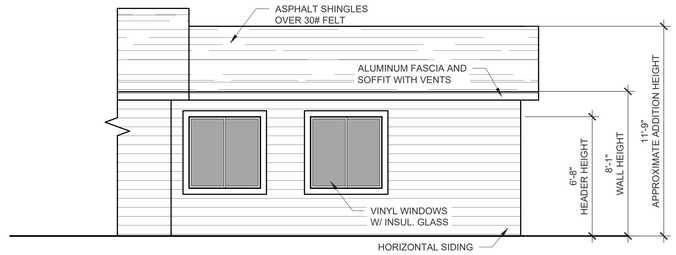
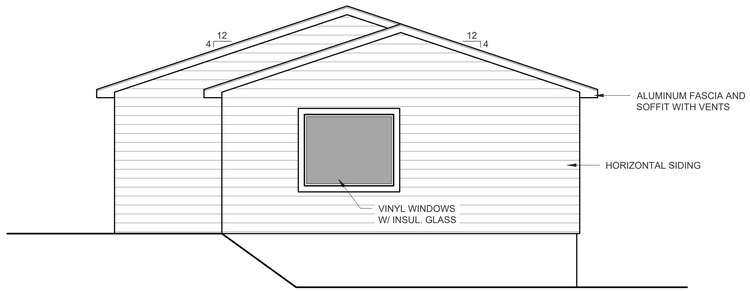
FLOOR DIMENSION PLAN



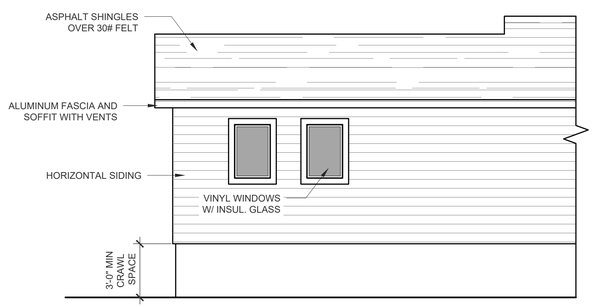
FRONT ELEVATION

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



RIGHT ELEVATION

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



REAR ELEVATION

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

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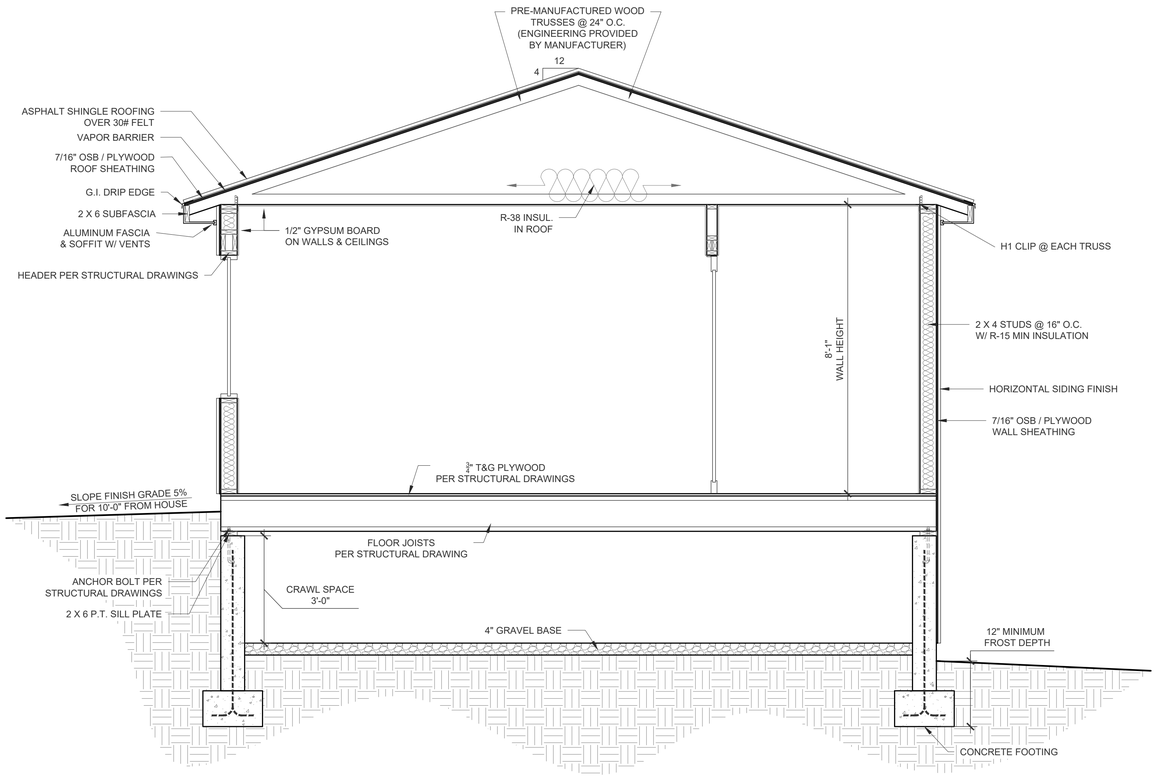
ELEVATIONS



CROSS SECTION A/6

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

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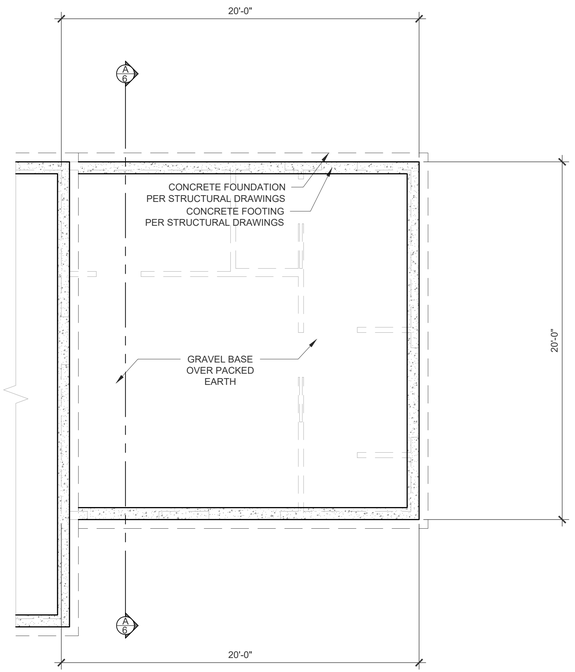
CROSS SECTION



SLAB EDGE PLAN

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

GENERAL NOTES

1. PROVIDE ANCHOR BOLTS ACCORDING TO STRUCTURAL DRAWINGS
2. PROVIDE HOLDOWNS AND STRAPS ACCORDING TO STRUCTURAL DRAWINGS
3. VERIFY ALL DIMENSIONS WITH THE FLOOR DIMENSION PLAN
4. BOTTOM OF ALL FOOTINGS ARE TO BE POURED ACCORDING TO LOCAL FROST DEPTH

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SLAB EDGE PLAN

ROOF PLAN

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

GENERAL NOTES

1. 1'-0" TYPICAL ROOF OVERHANG UNLESS NOTED OTHERWISE ON THE PLAN

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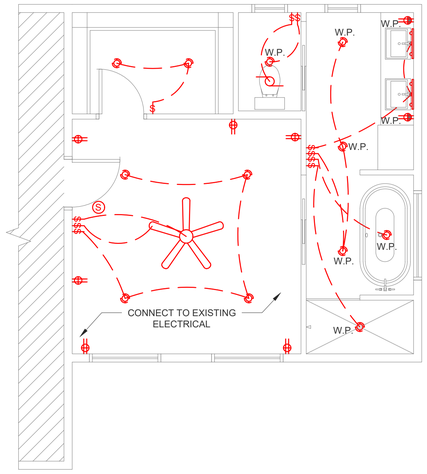
ROOF PLAN



ELECTRICAL PLAN

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

GENERAL NOTES

1. THIS PLAN IS FOR REFERENCE ONLY. ELECTRICAL CONTRACTOR TO DESIGN FULL ELECTRICAL SYSTEM
2. ARC FAULT ALL BEDROOM CIRCUITS
3. INSTALL A DEDICATED GFI BREAKER FOR DISHWASHER

ELECTRICAL LEGEND

- POWER METER
- PANEL BOARD
- EXHAUST FAN
- CEILING FAN
- LIGHT FIXTURE
- RECESSED LIGHT FIXTURE
- PENDANT LIGHT FIXTURE
- VANITY LIGHT FIXTURE
- DUPLEX OUTLET
- GFCI DUPLEX OUTLET
- 220v OUTLET
- SWITCH
- THREE-WAY SWITCH
- FOUR-WAY SWITCH
- JUNCTION BOX
- SMOKE DETECTOR
- CARBON DETECTOR
- FUSE DISCONNECT
- FLORESCENT LIGHT
- CIRCLE LED LIGHT

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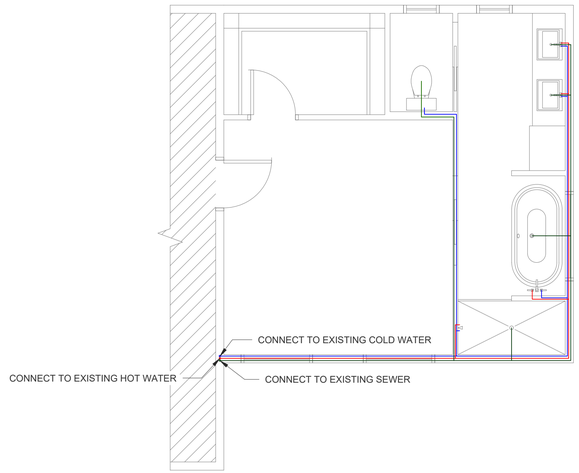
ELECTRICAL PLAN



PLUMBING PLAN

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

GENERAL NOTES

1. THIS PLAN IS FOR REFERENCE ONLY. PLUMBING CONTRACTOR TO DESIGN FULL PLUMBING SYSTEM

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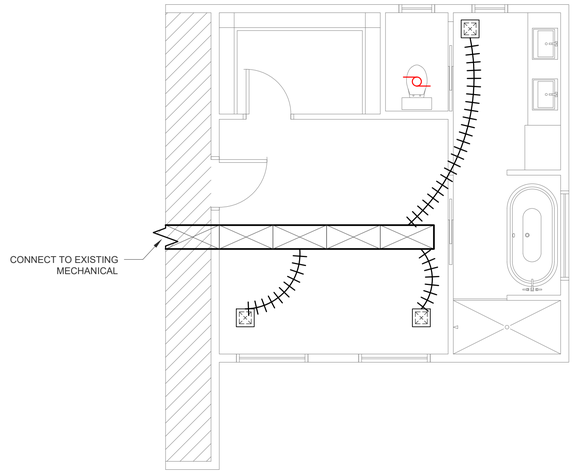
PLUMBING PLAN



GENERAL NOTES

1. THIS PLAN IS FOR REFERENCE ONLY. MECHANICAL CONTRACTOR TO DESIGN FULL MECHANICAL SYSTEM

MECHANICAL PLAN

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

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MECHANICAL PLAN

GENERAL STRUCTURAL NOTES

GENERAL

1. The contractor shall verify all dimensions prior to starting construction. The architect shall be notified of any discrepancies or inconsistencies.
2. Dimensions shall take precedence over scale shown on drawings.
3. Notes and details on drawings shall take precedence over general notes and typical notes.
4. All work shall conform to the minimum standards of the following code. The North Carolina Building Code, 2018 Edition (2015 IBC), and any other regulating agencies which have authority over any portion of the work, and those codes and standards listed in these notes and specifications.
5. See architectural drawings for the following:
   - Size and location of all door and window openings, except as noted
   - Size and location of all interior and exterior nonbearing partitions
   - Size and location of all concrete curbs, floor drains, slopes, depressed areas, changes in level, chamfers, grooves, inserts, etc.
   - Size and location of floor and roof openings except as shown
   - Floor and roof finishes
   - Stair framing and details (except as shown)
6. See mechanical, plumbing, and electrical drawings for the following:
   - Pipe runs, sleeves, hangers, trenches, wall and slab openings, etc. Except as shown or noted
   - Electrical conduit runs, boxes, outlets in walls and slabs
   - Concrete inserts for electrical, mechanical or plumbing fixtures
   - Size and location of machine or equipment bases, anchor bolts for mounts
7. The contract structural drawings and specifications represent the finished structure. They do not indicate the method of construction. The contractor shall provide all measures necessary to protect the structure during construction. Such measure shall include, but not be limited to, bracing, shoring for loads due to construction equipment, etc. Observation visits to the site by the structural engineer shall not include inspection of the above structural members.
8. Openings, pockets, etc. larger than 6 inches shall not be placed in slabs, decks, walls, etc. unless specifically detailed on the structural drawings. Notify the structural engineer when drawings by others show openings, pockets, etc. not shown on the structural drawings, but which are located on structural members.
9. ASTM specifications noted shall be the latest revision.
10. Contractor shall investigate site during clearing and earthwork operations for filled excavations or buried structures such as cesspools, cisterns, foundations, etc. If any such structures are found, the structural engineer shall be notified immediately.
11. Construction materials shall be spread out if placed on floors or roof. Load shall not exceed the design live load per square foot. Provide adequate shoring and/or bracing where structure has not attained design strength.
12. Design Loads:
    - Roof:
      - 18 psf DEAD
      - 20 psf LIVE
      - 11 psf SNOW (Pg = 15 psf)
    - Floor:
      - 12 psf DEAD
      - 40 psf LIVE (Reducible)
    - Wind:
      - Basic Wind Speed = 120 mph (3 sec. Gust)
      - Exposure: B
      - Risk Category: II
    - Seismic:
      - Importance Factor: I = 1
      - S_S = 0.136 S_1 = 0.066
      - Site Class: D
      - S_{DS} = 0.145 S_{D1} = 0.106
      - Seismic Design Category: B
      - Seismic Force Resisting System: Timber roof & floor diaphragms with wood shear walls
      - Base Shear:
        - V = 1.0 kips
      - C_S = 0.022
      - R = 6.5
      - Analysis Procedure: Equivalent lateral force procedure
      - Risk Category: II

FOUNDATION

1. Footings are designed based on an allowable soil pressure of 1500 PSF. Vector Structural Engineering strongly recommends independent soils testing be performed by a licensed geotechnical engineer to verify soil bearing capacity, slope stability, and any other related soil parameters, as required.
2. Contractor shall provide for proper de-watering of excavations from surface water, ground water, seepage, etc.
3. Footings shall be placed according to depths shown on the drawings.
4. Footing back fill and utility trench back fill within building area shall be mechanically compacted in layers. Flooding will not be permitted.
5. All abandoned footings, utilities, etc. that interfere with new construction shall be removed.
6. The soil under perimeter beams and slabs shall be above optimum moisture prior to concrete placement.
7. Clearing and Site Preparation – Debris, vegetation, and deleterious material should be stripped and removed from the site. Trees and vegetation should be removed from the site. Exposed surfaces should be scarified 12 inches, brought to within 2% of optimum moisture content, and compacted to a minimum relative compaction of 90% per ASTM D1557.
8. Undocumented Fill – All undocumented fill materials and loose materials should be removed to expose native confident material. Exposed surfaces should be scarified 12 inches, moisture conditioned, and compacted as described above.
9. Fill Materials – Fill material should be imported engineered fill.
10. All ø1/2" sill anchor bolts in concrete may be replaced with one of these options at the spacing indicated below:
    - ø1/2" Simpson Titen HD screws with 4" min embed, or approved equal
    - ø1/2" all-thread rod in ø5/8" hole with 4" embed using Simpson SET-3G epoxy, Simpson AT-3G epoxy, or approved equal

SILL ANCHORAGE TYPE	RETROFIT ø1/2" TITEN OR ALL-THREAD ROD SPACING
S1 & S2	SAME AS ø1/2" AB
S3 & S4	12" OC

CONCRETE

1. All phases of work pertaining to the concrete construction shall conform to the "Building Code Requirements for Reinforced Concrete" (ACI 318 latest approved edition) with modifications as noted in the drawings and specifications.
2. Reinforced concrete design is by the "Ultimate Strength Design Method", ACI 318-(latest edition)
3. Schedule of structural concrete 28-day strengths and types:

Location in structure	Strength PSI	Type
Slabs on Grade	4000	Hard rock
Footings	4000	Hard rock

   Design based on 2500 PSI, 28-day strength. Special inspection is not required unless noted otherwise in the SPECIAL INSPECTION / QUALITY ASSURANCE PLAN notes on this sheet.
4. Concrete mix design shall be submitted to the engineer for approval with the following requirements:
   a. Compressive strength at age 28 days as specified above
   b. Large aggregate-hardrock, 3/4" maximum size conforming to ASTM C33
   c. Cement-ASTM C150, Type II Portland cement
   d. Maximum slump 5-inches, max water cement ratio: 0.50
   e. No admixtures, except for entrained air, and as approved by the engineer
5. Concrete mixing operations, etc. shall conform to ASTM C94.
6. Concrete placement, consolidation and curing shall conform to ACI 318, Section 26.5.
7. Clear coverage of concrete over outer reinforcing bars shall be as follows: Concrete poured directly against earth – 3 inches clear, structural slabs – 3/4 inches clear (top and bottom), formed concrete with earth back fill – 2 inches clear.
8. All reinforcing bars, anchor bolts and other concrete inserts shall be well secured in position prior to placing concrete.
9. Provide sleeves for plumbing and electrical openings in concrete before placing. Do not cut any reinforcing that may conflict. Coring in concrete is not permitted except as shown. Notify the structural engineer in advance of conditions not shown on the drawings.
10. Conduit or pipe size (O.D.) shall not exceed 30% of slab thickness and shall be placed between the top and bottom reinforcing, unless specifically detailed otherwise. Concentrations of conduits or pipes shall be avoided except where detailed openings are provided.
11. Modulus of elasticity of concrete, when tested in accordance with ASTM C469, shall be at least the value given by the equations in section 8.5.1 of ACI 318 for the specified 28-day strength.
12. Shrinkage of concrete, when tested in accordance with ASTM C157, shall not exceed 0.0004 inches/inch.
13. Post-installed anchors shall only be used where specified on the plans. The contractor shall obtain approval from the EOR prior to installing post-installed anchors in place of missing or misplaced cast-in-place anchors.
14. Contact the EOR for adhesive anchor alternate when the install temperature is outside the approved temperature range provided by the manufacturer.

WOOD

1. Framing Lumber
   a. Southern Yellow Pine #2 grade for 2x and 4x framing except for 2x4, 2x6 studs use Southern Yellow Pine Stud grade, UNO
   b. 6x framing Southern Yellow Pine #1 5x And Larger grade
2. Bolt holes shall be 1/16" maximum larger than the bolt size. Re-tighten all nuts prior to closing in.
3. Standard cut washers shall be used under all sill plate anchor bolts, UNO at shear walls. See the Shear Wall Schedule on sheet S1.1 for anchor bolt spacing and washer requirements at shear walls.
4. All sills or plates resting on concrete or masonry shall be preservative treated Douglas Fir. Bolts shall be placed 9 inches from the end of a plate, or from a notch greater than ½ the width of the plate, and spaced at intervals noted.
5. Do not notch joists, rafters or beams except where shown in details. Obtain engineer's approval for any holes or notches not detailed. Holes through sills, plates, studs and double plates in interior, bearing and shear walls shall conform with detail 6/S1.2.
6. Connection hardware shall be by USP or Simpson Strong-Tie, or ICC approved equal.

DUAL SPECIFICATION TABLE

SIMPSON CONNECTOR	USP CONNECTOR	SIMPSON CONNECTOR	USP CONNECTOR
CS16	RS150	HDU2	PHD2A
ST6224	KST224	HDU4	PHD4A
A35	MPA1	HDU5	PHD5A
LUS24-2	JUS24-2	HDU8	PHD8
H1A	RT15	HDU11	UPHD11
H10A	RT16A		
LTP4	MP4F	STHD10	STAD10
LSSR	LSSH	STHD14	STAD14

7. Fastening schedule per North Carolina Building Code, 2018 Edition (2015 IBC), table No. 2304.10.2. Unless noted otherwise.
8. All nails, bolts, holdowns, straps or other steel fasteners in contact with preservative treated timber shall be hot-dipped galvanized, stainless steel or otherwise treated or isolated to prevent chemical attack. Contractor shall verify treatment method and confirm appropriate corrosion resistance be provided in accordance with hardware supplier recommendations.
9. Non-bearing, non-shear interior walls to be anchored to floor and/or roof as indicated on detail 10/S1.1.
10. All exposed deck members shall be preservative treated lumber. Members in contact with ground shall be rated for 'ground contact' exposure.

PREFABRICATED WOOD TRUSSES

1. Prefabricated wood roof trusses shall be as designed by the truss manufacturer. Bridging size and spacing by truss manufacturer unless noted otherwise. Contractor shall submit shop drawings, erection drawings and design calculations sealed by an engineer, registered in the state of North Carolina, for review prior to manufacture. Calculations and shop drawings shall show any special details required at bearing points. All connectors shall be Simpson or equivalent with current ICC approval.
2. Truss manufacturer to design trusses for lateral load (LAT. = xxxx) in pounds, as shown on plans. Lateral loads are ASD level loads.
3. Additional trusses shall be supplied as required to support mechanical equipment.
4. All truss-to-truss and truss-to-beam connectors per truss manufacturer.

WOOD STRUCTURAL PANELS

1. All wood structural panels shall be plywood or APA rated oriented strand board. Panels shall bear the stamp of an approved agency. Panels shall be of the span/index rating shown on the plans. Fastening shall be indicated on the plans.
2. All plywood shall be C-D interior sheathing with exterior glue. Plywood shall be 4-ply, minimum.

SHOP DRAWINGS

1. Shop drawings shall be submitted for all structural items in addition to items required by architectural specifications.
2. The contractor shall review all shop drawings prior to submittal. Items not in accordance with contract drawings shall be flagged for review.
3. Verify all dimensions with architect.
4. Any changes, substitutions, or deviations from original contract drawings shall be redlined or flagged by submitting parties, shall be considered approved after engineers review, unless noted otherwise.
5. The engineer has the right to approve or disapprove any changes to the original drawings at anytime before or after shop drawings review.
6. The shop drawings do not replace the original contract drawings. Items omitted or shown incorrectly and are not flagged by the structural engineer or architect are not to be considered changes to the original contract drawings.
7. The adequacy of engineering designs and layout performed by the others rests with the designing or submitting authority.
8. Reviewing is intended only as an aid to the contractor in obtaining correct shop drawings. Responsibility for corrections shall rest with the contractor.

SHEATHING

1. Roof sheathing
   7/16" wood structural panel: plywood or oriented strand board (OSB) panel index = 24/16, unblocked, nail with 8d common nails at 6" OC at all boundaries and supported edges, 12" OC field. Strong axis of sheathing to run perpendicular to supports.
2. Floor sheathing
   3/4" (min) wood structural panel: plywood or oriented strand board (OSB) T & G, panel index = 48/24, unblocked, nail with 10d common nails at 6" OC at all boundaries and supported edges, 12" OC field. Strong axis of sheathing to run perpendicular to supports.
3. Shear wall sheathing
   Sheathing for shear walls shall be as indicated on the shear wall plans and schedules. Sheathing at shear walls may be installed with panels horizontal or vertical. All shear wall panels shall have minimum wood structural panel span rating of 24/0 or "Wall-16."

SPECIAL INSPECTION / QUALITY ASSURANCE PLAN

1. The lateral force resisting system consists of timber roof & floor diaphragms with wood shear walls.
2. The following special inspections are required:
   - When required by the local building department: All timber elements of the lateral force resisting system components
   a. The owners shall employ special inspectors who shall provide additional inspections during construction in accordance with IBC section 17.
   b. All special inspections shall be performed by an independent certified inspector from an established testing agency, licensed and approved by the building department.
   c. The testing agency shall send copies of all structural testing and inspection reports directly to Vector Structural Engineering and all interested parties.
3. Structural testing is not required.
4. All reports shall be distributed on a monthly basis to the engineer of record, owner, contractor, and to the building official.
5. No structural observation is required. However, the engineer of record reserves the right to make field observations during construction approximately once per week.

REMODEL OR ADDITION

1. Information used to provide remodel and/or addition structural design is based on information provided by the owner or contractor. Vector Structural Engineering has not visited the site and verified the information provided. The contractor is to notify the Engineer of Record of any significant discrepancies between the structural drawings and the as-built condition. Work should not continue until discrepancies are resolved.
2. The scope of work is to be limited to that shown on the structural drawings. Additional remodeling or additions require design by the Engineer of Record. The existing structure is to remain undisturbed and has not been analyzed for structural integrity, methods of construction or compliance with current codes.
3. The structural drawings and specifications represent the finished structure. See note 7 in the GENERAL notes on this sheet.
4. Appropriate permits and licenses are required and the structural drawings and specifications provided do not remove the responsibility of the owner or contractor to obtain required permits from the appropriate governing authority.

SHEET INDEX

SHT #	SHEET NAME	ORIGINAL	MM-DD-YY	MM-DD-YY	MM-DD-YY	MM-DD-YY	MM-DD-YY	MM-DD-YY	MM-DD-YY	MM-DD-YY
S1	GENERAL STRUCTURAL NOTES	●								
S1.1	STANDARD DETAILS & SCHEDULES	●								
S1.2	STANDARD DETAILS & SCHEDULES	●								
S2	FOUNDATION PLAN	●								
S3	FRAMING PLAN	●								
S5	ROOF FRAMING PLAN	●								
S6	MAIN LEVEL SHEAR WALL PLAN	●								
SD-1	STRUCTURAL DETAILS	●								

ABBREVIATIONS

AB	ANCHOR BOLT	EJ	EXPANSION JOINT	o/	OVER
ABV	ABOVE	EL	ELEVATION	OC	ON CENTER
ADDL	ADDITONAL	EMBED	EMBEDMENT	OD	OUTSIDE DIAMETER
ARCHL	ARCHITECTURAL DRAWINGS	EOR	ENGINEER OF RECORD	OPNG	OPENING
b/	BOTTOM OF	EQ	EQUAL	OPP	OPPOSITE
BLDG	BUILDING	EW	EACH WAY	OPT	OPTIONAL
BLK	BLOCK/BLOCKING	FIN	FINISHED	OSB	ORIENTED STRAND BOARD
BLW	BELOW	FL or FLR	FLOOR	OSF	OUTSIDE FACE
BM	BEAM	FND	FOUNDATION	PL	PLATE
BOT	BOTTOM	FS	FAR SIDE	PSL	PARALLEL STRAND LUMBER
BRG	BEARING	FTG	FOOTING	PT	POST-TENSION
CANTL	CANTILEVERED	GL	GLUE LAMINATED	PT	PRESSURE TREATED
CFS	COLD-FORMED STEEL	GSN	GENERAL STRUCTURAL NOTES	REINF	REINFORCEMENT
CIP	CAST IN PLACE	HD	HOLDOWN	REQD	REQUIRED
CJ	CONTROL JOINT	HDR	HEADER	SHT	SHEET
CL	CENTER LINE	HGR	HANGER	SHTHG	SHEATHING
CLG	CEILING	HOR	HORIZONTAL	SIM	SIMILAR
CLR	CLEAR	ID	INSIDE DIAMETER	SQ	SQUARE
CMU	CONCRETE MASONRY UNIT	ISF	INSIDE FACE	STD	STANDARD
COL	COLUMN	JT	JOINT	STL	STEEL
CONC	CONCRETE	KP	KING POST	SYM	SYMMETRICAL
CONN	CONNECT/CONNECTION	KS	KING STUD	t/	TOP OF
CONST	CONSTRUCTION	LLH	LONG LEG HORIZONTAL	T&B	TOP AND BOTTOM
CONT	CONTINUOUS	LLV	LONG LEG VERTICAL	THK	THICK
C.W.	CROSSWISE	LSH	LONG SIDE HORIZONTAL	TOF	TOP OF FOOTING
DBL	DOUBLE	LSL	LAMINATED STRAND LUMBER	TOW	TOP OF WALL
DIM	DIMENSION	LSV	LONG SIDE VERTICAL	TS	TRIMMER STUD
DIR	DIRECTION	LVL	LAMINATED VENEER LUMBER	TYP	TYPICAL
DTL	DETAIL	L.W.	LENGTHWISE	u/	UNDER
DWG	DRAWING	MFR	MANUFACTURER/MANUFACTURED	UNO	UNLESS NOTED OTHERWISE
DWL	DOWEL	MIR	MIRRORED	VERT	VERTICAL
(E)	EXISTING	(N)	NEW	w/	WITH
EA	EACH	NS	NEAR SIDE	WP	WORK POINT
EF	EACH FACE	NTS	NOT TO SCALE		

ORIGINAL: 07-04-25 | ENG: RAM | DWN: SEH | CHK: RAM

REV. #	DATE	BY:	DESCRIPTION

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GENERAL STRUCTURAL NOTES

NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 049893 JACOB S. PROCTOR
07/02/2025
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049893

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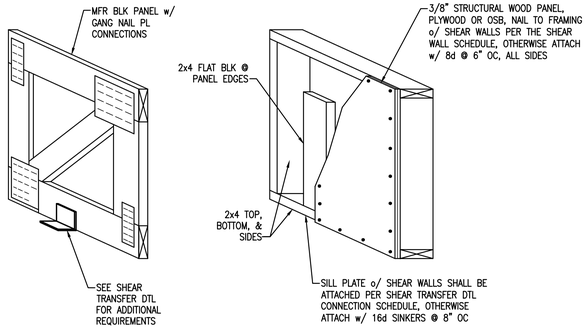
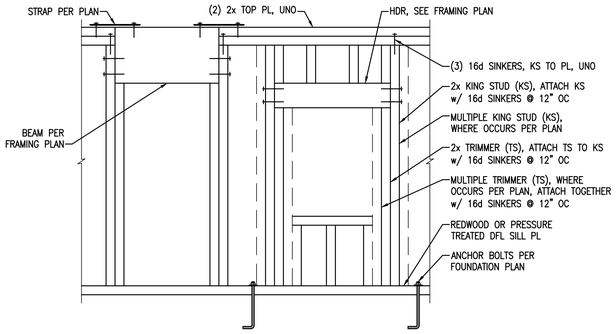


TYP BLOCKING PANEL

NTS

7



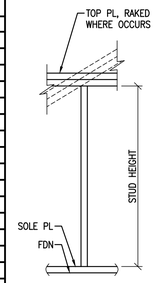
TYP WALL FRAMING

NTS

8

STUD HEIGHT TABLE

STUD WALL TYPE	BEARING AND/OR SHEAR WALLS (MAX HEIGHT)		NON-BEARING AND NON-SHEAR WALLS (MAX HEIGHT)
	EXTERIOR	INTERIOR	INTERIOR ONLY
2x4 STUD @ 16" OC	8'-6"	10'-0"	13'-0"
2x4 STUD @ 12" OC	9'-6"	11'-6"	14'-0"
(2) 2x4 STUD @ 16" OC	12'-0"	13'-6"	14'-0"
2x4 DFL #2 @ 16" OC	9'-0"	11'-0"	13'-0"
2x4 DFL #2 @ 12" OC	10'-6"	13'-0"	14'-0"
(2) 2x4 DFL #2 @ 16" OC	13'-0"	13'-6"	14'-0"
2x6 STUD @ 16" OC	14'-6"	19'-0"	20'-0"
2x6 STUD @ 12" OC	17'-0"	21'-0"	22'-0"
(2) 2x6 STUD @ 16" OC	21'-0"	22'-0"	22'-6"
2x6 DFL #2 @ 16" OC	16'-6"	19'-6"	20'-0"
2x6 DFL #2 @ 12" OC	18'-6"	21'-6"	22'-0"
(2) 2x6 DFL #2 @ 16" OC	22'-6"	22'-6"	22'-6"
2x8 DFL #2 @ 16" OC	22'-0"	26'-6"	27'-0"
2x8 DFL #2 @ 12" OC	25'-6"	28'-0"	30'-0"
(2) 2x8 DFL #2 @ 16" OC	29'-6"	29'-6"	30'-0"
1-3/4 x 7-1/4 LVL STUDS @ 16" OC	27'-0"	30'-0"	30'-0"
1-3/4 x 5-1/2 LVL STUDS @ 16" OC	20'-6"	21'-6"	22'-0"
2x4 OR 2x6 STUD @ 24" OC	–	–	11'-6"



NOTES:
1. THIS TABLE ASSUMES IBC WIND LOADS w/ 115 mph, EXP "C" AT EXTERIOR WALLS & 5 psf LATERAL LOAD AT INTERIOR WALLS.
2. THIS TABLE ASSUMES AXIAL DL = 710 lb/ft, LL = 760 lb/ft AT EXTERIOR AND INTERIOR WALLS.

STANDARD STUD TABLE

NTS

4

NOT USED

NTS

5

SHEAR WALL SCHEDULE

MARK	MIN BLOCKED MATERIAL	EDGE / BOUNDARY NAILING	FIELD NAILING	SOLE PL NAILING, WHERE OCCURS	WALL CAPACITY		DEFAULT SILL ANCHORAGE, UNO
					SEISMIC	WIND	
G1	1/2" GYPBOARD	#6 SCREWS @ 8" OC	#6 DRYWALL SCREWS @ 12" OC	16d SINKERS @ 6" OC	60 plf	60 plf	S0
P1	3/8" PLYWOOD OR OSB	8d COMMON NAILS @ 6" OC	8d COMMON NAILS @ 12" OC	16d SINKERS @ 6" OC	260 plf	365 plf	S1
P2	3/8" PLYWOOD OR OSB	8d COMMON NAILS @ 4" OC	8d COMMON NAILS @ 12" OC	16d SINKERS @ 4" OC	365 plf	520 plf	S2
P3	3/8" PLYWOOD OR OSB	8d COMMON NAILS @ 3" OC	8d COMMON NAILS @ 12" OC	16d SINKERS @ 3" OC	490 plf	685 plf	S3
P4	3/8" PLYWOOD OR OSB	8d COMMON NAILS @ 2" OC	8d COMMON NAILS @ 12" OC	16d SINKERS @ 2" OC	640 plf	895 plf	S4

SILL ANCHORAGE SCHEDULE

MARK	NOMINAL SILL PL THICKNESS	#1/2" AB SPACING	#5/8" AB SPACING	CAPACITY
S0	2x	48" OC	72" OC	260 plf
S1	2x	32" OC	48" OC	370 plf
S2	2x	24" OC	32" OC	520 plf
S3	2x	16" OC	24" OC	740 plf
S4	2x	12" OC	16" OC	1040 plf

SHEAR WALL LENGTH TOLERANCES

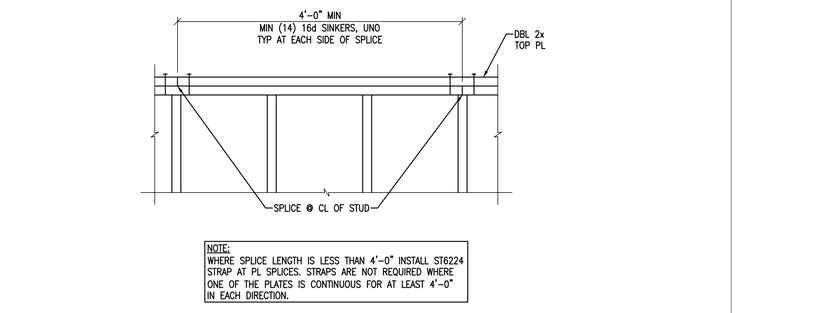
SPECIFIED SHEAR WALL LENGTH	ACCEPTABLE SHEAR WALL TOLERANCE
UP TO 3'-0"	± 2"
OVER 3'-0" AND UP TO 5'-0"	± 3"
OVER 5'-0" AND UP TO 7'-0"	± 4"
OVER 7'-0" AND UP TO 10'-0"	± 6"
OVER 10'-0"	± 8"

1. ALL SHEAR WALLS SHALL BE FRAMED TO THE MINIMUM LENGTHS SHOWN ON THE PLANS WITH THE TOLERANCES INDICATED ON THE TABLE ABOVE, UNO ON PLAN w/ MINIMUM WALL LENGTH.
2. ALL SHEAR WALLS SHALL TERMINATE ON AT LEAST (1) FULL HEIGHT STUD. ADDITIONAL STUDS OR SOLID POSTS SHALL BE INSTALLED AS REQUIRED FOR HOLDOWNS WHERE THEY OCCUR.
3. 8d COMMON NAIL SHANK DIAMETER = 0.131", 16d SINKER SHANK DIAMETER = 0.148"
4. FOR "P2", "P3" AND "P4" SHEAR WALLS, ALL FRAMING RECEIVING EDGE NAILING FROM ADJOINING PANEL EDGES SHALL BE 3-INCH NOMINAL OR WIDER AND NAILS SHALL BE STAGGERED. AS AN ALTERNATE, (2) 2x STUDS MAY BE USED PROVIDED THEY ARE NAILED TOGETHER w/ (2) 16d SINKERS @ 6" OC FULL HEIGHT.
5. FOR "P2", "P3" AND "P4" DOUBLE-SIDED SHEAR WALLS, PANEL JOINTS SHALL BE OFFSET TO FALL ON DIFFERENT FRAMING MEMBERS, OR FRAMING SHALL BE 3-INCH NOMINAL OR WIDER AT ADJOINING PANEL EDGES AND NAILS ON EACH SIDE SHALL BE STAGGERED.
6. ALL ANCHOR BOLTS SHALL HAVE 7" MINIMUM EMBEDMENT.
7. ALL SHEAR WALL ANCHOR BOLTS SHALL INCLUDE A STEEL 3"x3"x0.229" PLATE WASHER BETWEEN THE SILL PL & NUT. THE HOLE IN THE PLATE WASHER IS PERMITTED TO BE DIAGONALLY SLOTTED WITH A WIDTH OF UP TO 3/16" LARGER THAN THE BOLT DIAMETER AND A SLOT LENGTH NOT TO EXCEED 1-3/4", PROVIDED A STANDARD CUT WASHER IS PLACED BETWEEN THE PLATE WASHER AND THE NUT. ANCHOR BOLTS & PLATE WASHERS ARE TO BE OFFSET TOWARD THE SHEATHED WALL EDGE TO LIMIT THE GAP BETWEEN THE EDGE OF WASHER TO SHEATHING TO A MAXIMUM OF 1/2". WHERE BOTH SIDES OF A 2x6 WALL IS SHEATHED A STEEL 4-1/2"x3"x0.229" PLATE WASHER SHALL BE CENTERED ON THE SILL PLATE, PER DTL 2/-.

STANDARD SHEAR WALL SCHEDULE

NTS

1

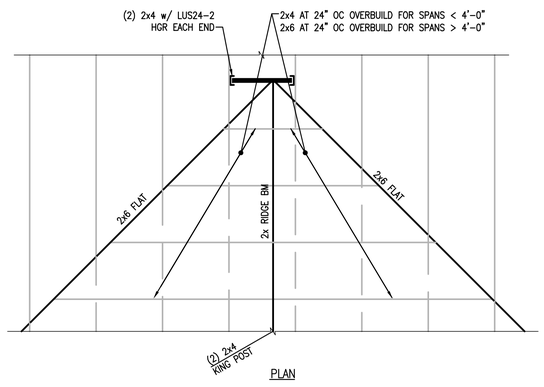


NOTE:
WHERE SPLICE LENGTH IS LESS THAN 4'-0" INSTALL ST6224 STRAP AT PL SPLICES. STRAPS ARE NOT REQUIRED WHERE ONE OF THE PLATES IS CONTINUOUS FOR AT LEAST 4'-0" IN EACH DIRECTION.

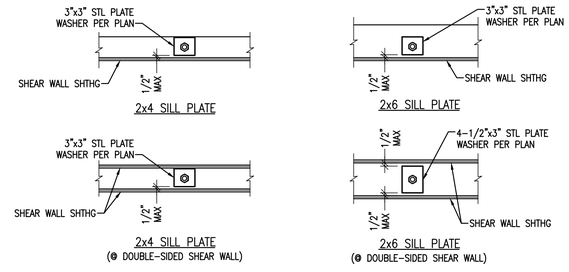
TYP TOP PLATE SPLICE

NTS

9



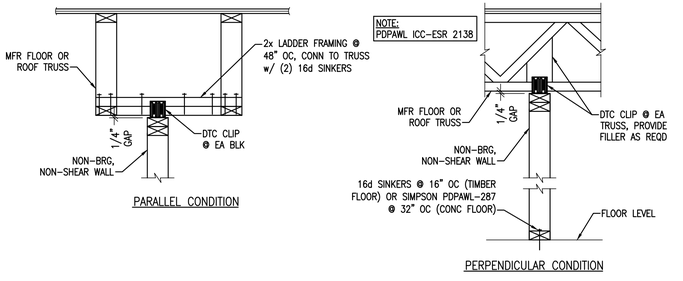
PLAN



TYP SHEAR WALL WASHERS

NTS

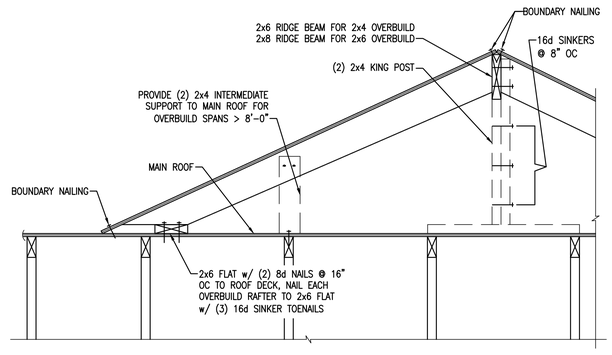
2



NON-BRG & NON-SHEAR WALL CONN

NTS

10



TYP OVERBUILD

NTS

6

FOOTING SCHEDULE

MARK	SIZE	REINFORCING, BOTTOM
F2.0	2'-0" SQ x 10" THICK	(3) #4 EACH WAY
F2.5	2'-6" SQ x 10" THICK	(3) #4 EACH WAY
F3.0	3'-0" SQ x 12" THICK	(4) #4 EACH WAY
F3.5	3'-6" SQ x 12" THICK	(5) #4 EACH WAY
F4.0	4'-0" SQ x 12" THICK	(6) #4 EACH WAY
F4.5	4'-6" SQ x 14" THICK	(7) #4 EACH WAY
F5.0	5'-0" SQ x 14" THICK	(8) #4 EACH WAY
F5.5	5'-6" SQ x 16" THICK	(10) #4 EACH WAY
CF1.0	1'-0" WIDE x 10" THICK	(2) #4 CONT
CF1.33	1'-4" WIDE x 10" THICK	(2) #4 CONT
CF1.5	1'-6" WIDE x 10" THICK	(2) #4 CONT

STANDARD FOOTING SCHEDULE

NTS

3

REV. #	DATE	BY:	DESCRIPTION
ORIGINAL: 07-04-25	ENG: RAM	DWN: SEH	CHK: RAM

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STANDARD DETAILS & SCHEDULES

07/02/2025

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049893

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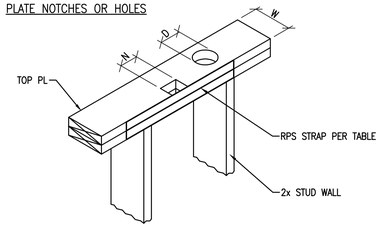
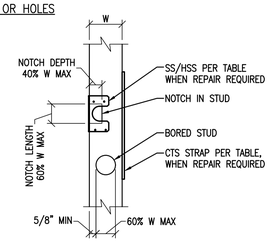
PLATE NOTCHES OR HOLES



2x4 STUD	2x6 STUD	2x4 & 2x6 PLATE	
HOLE DIA. 'D'	HOLE DIA. 'D'	NOTCH WIDTH 'N' (MAX NOTCH DEPTH = W/2	RPS STRAP
≤ 7/8"	≤ 1"	≤ 1"	NONE
≤ 1"	≤ 1 3/8"	≤ 2 1/2"	(1) RPS18
≤ 1 3/8"	≤ 2 1/8"	≤ 5 1/2"	(2) RPS18
≤ 2"	≤ 3 1/4"	≤ 12"	(2) RPS28

NOTES:
1. USE RPSZ FOR SILL PLATE.
2. CENTER STRAPS @ NOTCH OR HOLE.
3. WHERE ROOF TRUSS OR FLOOR JOIST IS BEARING WITHIN STUD BAY OF THE HOLE OR NOTCH, INSTALL AN ADDITIONAL STUD DIRECTLY BELOW THE TRUSS OR JOIST UNLESS NO RPS STRAP IS REQUIRED OR WHERE EXISTING STUD FACE IS WITHIN 3" OF TRUSS OR JOIST FACE.
4. NOTCHES & HOLES MUST BE SEPARATED BY "2xD" OR "2xN".
5. WHERE MULTIPLE HOLES ARE LOCATED ADJACENT TO EACH OTHER, THE STRAP REPAIR MAY BE WITH A CS16 STRAP ON EACH SIDE OF THE UPPER PLATE. THE STRAPS AND NAILING SHALL EXTEND AT LEAST 9" BEYOND EACH END OF THE WHOLE GROUP. NAILING BETWEEN THE HOLES IS NOT REQUIRED. NAILS IN THE CS16 STRAPS MAY BE N8'S OR N10'S.

STUD NOTCHES OR HOLES



ALLOWABLE HOLES OR NOTCHES FOR NON-BEARING, NON-SHEAR OR INTERIOR PARTITIONS (NO REPAIR REQD)

HOLE / NOTCH SCHEDULE

HOLE / NOTCH % OF 'W'	2x4 STUD	2x6 STUD
25%	3/4"	1-3/8"
40%	1-3/8"	2-1/8"
60%	2"	3-1/4"

NOTES:
1. HOLES & NOTCHES SHALL NOT OCCUR IN THE SAME STUD.
2. WHERE HOLES OR NOTCHES EXCEED THOSE SHOWN ABOVE, REPAIR PER TABLE BELOW.
3. ALL NOTCHES IN BEARING OR SHEAR OR EXTERIOR WALLS REQUIRE REPAIRS.

STUD HOLE REPAIR

	2x4 STUD	2x6 STUD	
	HOLE DIA. 'D'	HOLE DIA. 'D'	REPAIR
NON-BEARING & NON-SHEAR & INTERIOR	≤ 2 3/4"	≤ 4 1/2"	(1) CTS218 w/ 10d
BEARING OR SHEAR OR EXTERIOR WALL	≤ 3/4"	≤ 1 3/8"	(1) CTS218 w/ 10d
BEARING OR SHEAR OR EXTERIOR	≤ 2 3/4"	≤ 4 1/2"	(2) CTS218 TWO-SIDED w/ 10d

STUD NOTCH REPAIR

	2x4 STUD	2x4 STUD	2x6 STUD	2x6 STUD	
	NOTCH DEPTH	NOTCH LENGTH	NOTCH DEPTH	NOTCH LENGTH	REPAIR
NON-BEARING & NON-SHEAR & INTERIOR	≤ 2 1/2"	≤ 4 1/2"	≤ 3 3/4"	≤ 4 1/2"	(1) CTS218 w/ 10d
BEARING OR SHEAR OR EXTERIOR WALL	≤ 2 1/2"	≤ 2 1/2"	≤ 2 1/2"	≤ 2 1/2"	SS w/ 10d
BEARING OR SHEAR OR EXTERIOR	≤ 2 3/4"	≤ 4 1/2"	≤ 4 1/2"	≤ 4 1/2"	(2) CTS218 TWO-SIDED w/ 10d

DRILLING & NOTCHING OF PLATES & STUDS 6

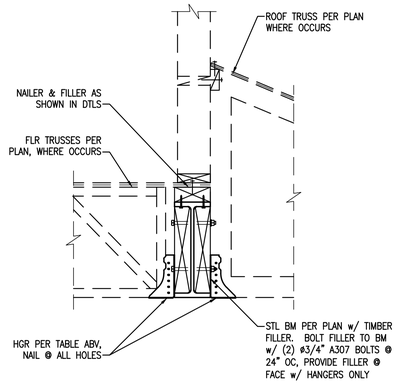
NTS

MFR TRUSS TO BEAM HANGERS

CARRYING MEMBER	CARRIED MBR WIDTH	HANGER TYPE	MAX REACTION (FROM TRUSS CALCS.) (LBS)	NOTES
STEEL OR TIMBER	1-1/2"	LUS210	1275	FACE MOUNT
STEEL OR TIMBER	1-1/2"	HUS26	2565	FACE MOUNT
STEEL OR TIMBER	1-1/2"	HGUS26	3750	FACE MOUNT
STEEL OR TIMBER	1-1/2"	HGUS28	5720	FACE MOUNT
STEEL OR TIMBER	3"	LUS26-2	1000	FACE MOUNT
STEEL OR TIMBER	3"	HHUS26-2	2580	FACE MOUNT
STEEL OR TIMBER	3"	HGU26-2	3940	FACE MOUNT
STEEL OR TIMBER	3"	HGUS28-2	6805	FACE MOUNT
STEEL OR TIMBER	3"	HGUS210-2	8650	FACE MOUNT
STEEL OR TIMBER	3-1/2"	LUS46	1000	FACE MOUNT
STEEL OR TIMBER	3-1/2"	HHUS46	2580	FACE MOUNT
STEEL OR TIMBER	3-1/2"	HGUS46	3940	FACE MOUNT
STEEL OR TIMBER	3-1/2"	HGUS48	6805	FACE MOUNT
STEEL OR TIMBER	6"	HGUS26-4	3940	FACE MOUNT
STEEL OR TIMBER	6"	HGUS210-4	8780	FACE MOUNT
STEEL OR TIMBER	6"	HGUS212-4	9155	FACE MOUNT

NOTES:

1. FOR STEEL BEAMS CARRYING FLOOR TRUSSES, PROVIDE TIMBER FILLER PER DTL BELOW.
2. ALTERNATE HANGERS MAY BE USED AT THE CONTRACTOR'S OPTION. SUBMIT TO ENGINEER OF RECORD FOR APPROVAL.
3. HANGERS APPLICABLE FOR TIMBER BEAMS.



TYP STEEL BEAM

TYP TRUSS HANGERS 4

NTS

NOT USED 5

NTS

STANDARD TRUSS TIE-DOWNS

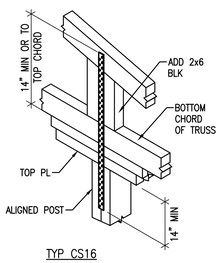
UPLIFT LOAD PER TRUSS MANUFACTURER	SIMPSON TIE-DOWN	REQD ALIGNED HOLDOWN & POST
130 TO 425 lbs	H1A or CS16	NOT REQD
< 485 lbs	SDWC TRUSS SCREW	NOT REQD
< 615 lbs	H2.5A or CS16	NOT REQD
< 1015 lbs	H10A or CS16	HDU2 & (2) 2x4 POST
< 1180 lbs	H16 or CS16	HDU2 & (2) 2x4 POST
< 6485 lbs	HGT-2	(2) 2x4 POST w/ HDU4 (2) HDU2 @ TOP TO HGT-2 AT (1) PLY TRUSS, INSTALL 2x SHAPED FILLER ADJACENT TO TRUSS AT BEARING

NOTES:
1. TIE-DOWN CAPACITIES ARE BASED ON SPRUCE PINE FIR
2. TRUSS UPLIFT OF LESS THAN 130lbs: TIE-DOWN NOT REQD, ATTACH w/ (3) 16d SINKER TOENAILS TRUSS TO PL
3. SEE TYP HOLDOWN ANCHORAGE DETAIL FOR HDU HOLDOWN INSTALLATION

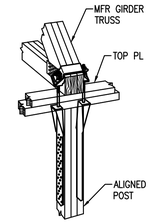
STANDARD FLOOR-TO-FLOOR STRAPS

*UPLIFT LOAD PER TRUSS MANUFACTURER	SIMPSON TIE-DOWN	REQD ALIGNED POST
< 1705 lbs	CS16	2x4 POST
< 3410 lbs	(2) CS16	(2) 2x4 POST

NOTES:
1. INSTALL CS16 STRAPS TO 2x STUDS ABOVE AND BELOW FLOOR FRAMING. NAIL EACH END w/ (11) 10d NAILS. STRAP TO EXTEND MIN 14" ONTO STUDS ABOVE AND BELOW FLOOR FRAMING.
2. WHERE UPLIFT OCCURS ABOVE HDR OR BM, INSTALL STRAP PER SCHEDULE AT EACH TRIMMER OR POST
3. FLOOR TO FLOOR STRAPS REQD ALIGNED WITH ROOF TRUSS ABV



TYP CS16



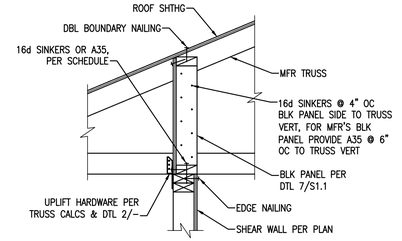
TYP HGT-2 INSTALLATION

TYP TRUSS ANCHORAGE 2

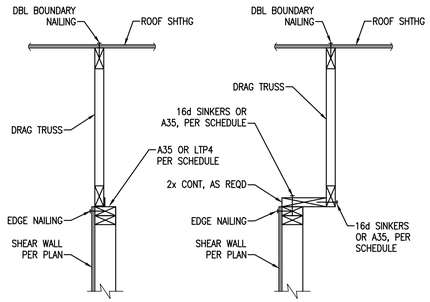
NTS

NOT USED 3

NTS



TYPE A



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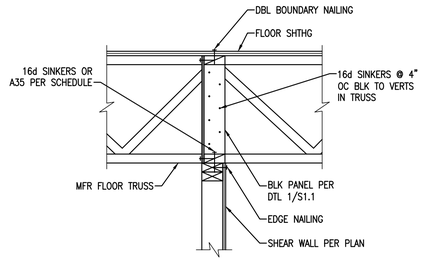

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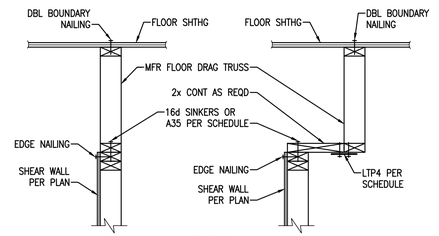

TYPE D

CONNECTION SCHEDULE

SHEAR WALL	A35 OR LTP4	16d SINKERS
P1	18" OC	6" OC
P2	12" OC	4" OC
P3	10" OC	3" OC (STAGGERED)
P4	8" OC	2" OC (STAGGERED)
DBL P3 OR P4	6" OC	(2) @ 3" OC (STAGGERED)

SHEAR TRANSFER 1

NTS

REV. #	DATE	BY:	DESCRIPTION
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STANDARD DETAILS & SCHEDULES

NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 049893 JACOB S. PROCTOR

07/02/2025

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049893

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S1.2

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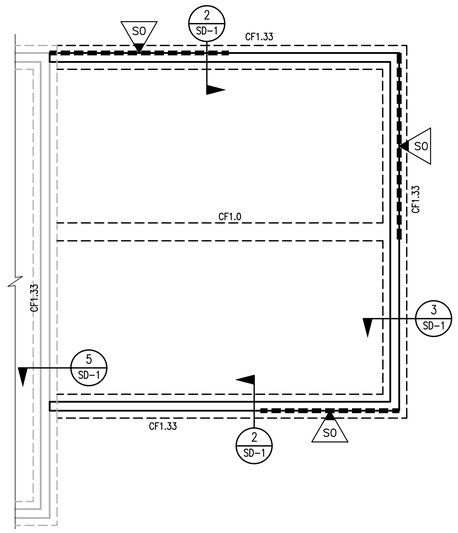
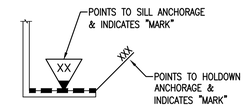


FOUNDATION PLAN

1/4" = 1'-0"

FOUNDATION NOTES:

1. CONTRACTOR TO CONFIRM DIMENSIONS WITH ALL ARCHL PLANS PRIOR TO CONSTRUCTION.
2. ALL EXTERIOR WALLS, INTERIOR BEARING WALLS & SHEAR WALLS TO BE ATTACHED TO THE FOUNDATION w/ #1/2" x 10" LONG ANCHOR BOLTS (7" EMBED) AT 72" OC, UNO. SEE THIS PLAN & SHEAR WALL SCHEDULE FOR ANCHOR BOLT REQUIREMENTS AT SHEAR WALLS. ANCHOR BOLTS AT SHEAR WALLS TO HAVE WASHERS PER SHEAR WALL SCHEDULE (S1.1). ALL OTHER ANCHOR BOLTS TO HAVE WASHERS PER "WOOD" NOTE 3 ON SHEET S1.
3. ISOLATED FOOTINGS & INTERIOR STRIP FOOTINGS TO BE CENTERED BELOW POSTS & BEARING/SHEAR WALLS, RESPECTIVELY.
4. SEE SHEET S1.1 FOR FOOTING SCHEDULE.
5. MASA MUDSILL ANCHORS MAY BE USED IN PLACE OF ANCHOR BOLTS, INSTALLED AT THE SAME SPACING INDICATED FOR ANCHOR BOLTS, INCLUDING REDUCED SPACING AT SHEAR WALLS.
6. STRIP & REMOVE EXISTING VEGETATION, REMOVE UNCONTROLLED FILL, OVEREXCAVATE AND REPLACE w/ PROPERLY COMPACTED FILL.
7. FOUNDATION VENTS, WHEN REQUIRED, TO BE INSTALLED AND SPACED PER IRC R408. MAINTAIN 1'-0" HORIZONTAL CLEARANCE BETWEEN VENTS AND HOLDOWNS/POSTS.



NOTES:
SEE SHEET S1.1 FOR SILL ANCHORAGE SCHEDULE.
SEE SHEET SD-1 FOR HOLDOWN ANCHORAGE SCHEDULE.

SILL ANCHORAGE KEY

NOTE:
ALL EXISTING ELEMENTS OF THE STRUCTURE ARE TO REMAIN UNDISTURBED, UNO. CONTRACTOR TO VERIFY ALL EXISTING FRAMING MEMBER SIZES, CONFIGURATION, SPAN DIRECTIONS, ETC, PRIOR TO ANY DEMOLITION OR CONSTRUCTION, AND SHALL NOTIFY THE ENGINEER OF RECORD IMMEDIATELY IF ANY DISCREPANCIES BETWEEN THESE PLANS AND ACTUAL FIELD CONDITIONS ARE FOUND.

ORIGINAL: 07-04-25	ENG: RAM	DWN: SEH	CHK: RAM
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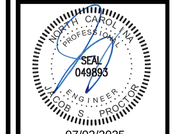
FOUNDATION PLAN



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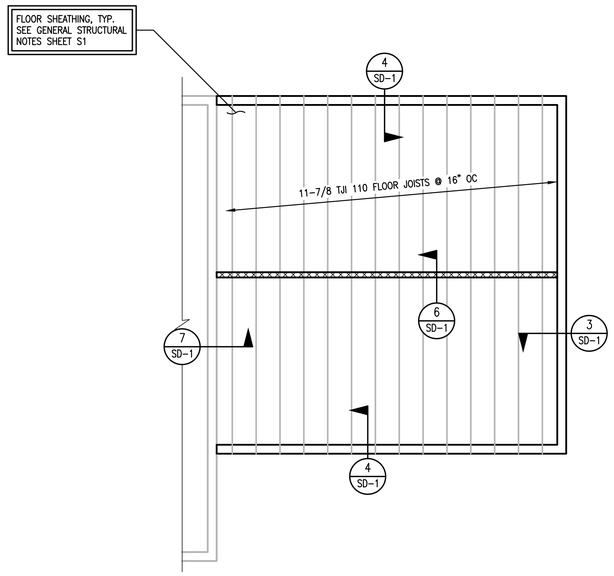
S2

CRAWL SPACE FRAMING NOTES:

1. ALL PONY WALLS TO BE 2x4 @ 16" OC, UNO.
2. FACE NAIL MULTIPLE 2x POSTS WITH 16d SINKERS @ 6" OC.
3. PROVIDE CONTINUOUS LOAD PATH TO FOUNDATION WITH POSTS AND SQUASH BLOCKS AS REQUIRED.
4. ⊠ INTERIOR BEARING WALLS.

NOTE:
ALL EXISTING ELEMENTS OF THE STRUCTURE ARE TO REMAIN UNDISTURBED, UNO. CONTRACTOR TO VERIFY ALL EXISTING FRAMING MEMBER SIZES, CONFIGURATION, SPAN DIRECTIONS, ETC, PRIOR TO ANY DEMOLITION OR CONSTRUCTION, AND SHALL NOTIFY THE ENGINEER OF RECORD IMMEDIATELY IF ANY DISCREPANCIES BETWEEN THESE PLANS AND ACTUAL FIELD CONDITIONS ARE FOUND.



FRAMING PLAN

1/4" = 1'-0"

ORIGINAL: 07-04-25	ENG: RAM	DWN: SEH	CHK: RAM

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FRAMING PLAN

NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 049893 JACOB S. PROCTOR

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S3

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FRAMING NOTES:

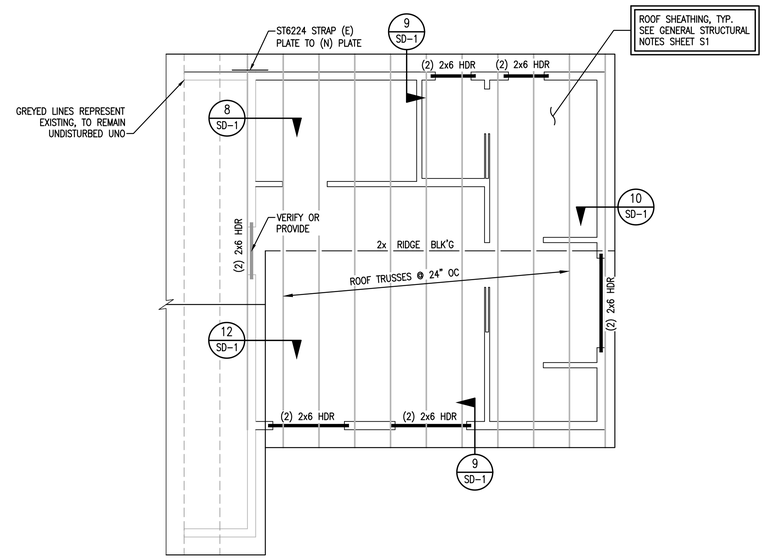
1. ALL FRAMED WALLS TO BE 2x @ 16" OC (MAX) PER ARCHITECTURAL PLANS AND SHALL MEET REQUIREMENTS OF STANDARD STUD TABLE ON SHEET S1.1 AND SHALL MEET FRAMING REQUIREMENTS OF DETAIL 8/S1.1.
2. FACE NAIL MULTIPLE 2x POSTS WITH 16d SINKERS @ 6" OC.
3. SHADED AREAS ARE TYPICAL OVERBUILD, STICK FRAMED PER DETAIL 6/S1.1 OR OVERBUILD TRUSSES PER TRUSS MANUFACTURER.
4. INTERIOR BEARING WALLS.
5. PROVIDE (2) 2x POST, EACH END OF ALL BEAMS & GIRDER TRUSSES, UNO.
6. PROVIDE CONTINUOUS LOAD PATH TO FOUNDATION WITH POSTS, CRIPPLES, AND SQUASH BLOCKS AS REQUIRED.
7. BEAM AND HEADER SIZES INDICATED ON THE PLANS ARE MINIMUM SIZES. LARGER SIZES MAY BE INSTALLED AT THE CONTRACTOR'S OPTION.
8. CONTINUOUS TOP PLATE MAY BE USED IN LIEU OF STRAP FROM BEAM TO PLATE.

NOTE:
ALL EXISTING ELEMENTS OF THE STRUCTURE ARE TO REMAIN UNDISTURBED, UNO. CONTRACTOR TO VERIFY ALL EXISTING FRAMING MEMBER SIZES, CONFIGURATION, SPAN DIRECTIONS, ETC, PRIOR TO ANY DEMOLITION OR CONSTRUCTION, AND SHALL NOTIFY THE ENGINEER OF RECORD IMMEDIATELY IF ANY DISCREPANCIES BETWEEN THESE PLANS AND ACTUAL FIELD CONDITIONS ARE FOUND.

KING STUD & TRIMMER SCHEDULE

NUMBER OF KS / TS	(1) KS / (1) TS	(2) KS / (2) TS	(3) KS / (2) TS
WALL SIZE	MAX OPENING WIDTH		
2x6	5'-0"	14'-0"	20'-0"

NOTES:
1. THE NUMBER OF KING STUDS AND TRIMMERS ARE TO BE INSTALLED AS SHOWN IN THE SCHEDULE, UNO ON PLANS.
2. FACE NAIL MULTIPLE STUDS w/ 16d SINKERS @ 12" OC.



ROOF FRAMING PLAN

1/4" = 1'-0"

ORIGINAL: 07-04-25	ENG: RAM	DWN: SEH	CHK: RAM
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ROOF FRAMING PLAN

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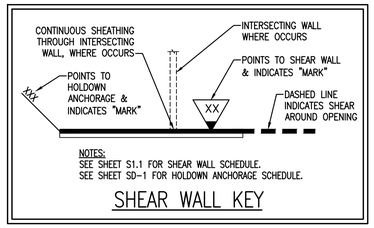


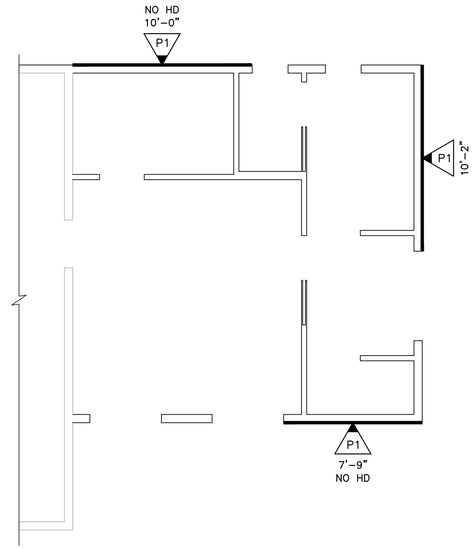
NOTES:
SEE SHEET S1.1 FOR SHEAR WALL SCHEDULE.
SEE SHEET SD-1 FOR HOLDOWN ANCHORAGE SCHEDULE.

SHEAR WALL KEY

NOTE:
ALL EXISTING ELEMENTS OF THE STRUCTURE ARE TO REMAIN UNDISTURBED, UNO. CONTRACTOR TO VERIFY ALL EXISTING FRAMING MEMBER SIZES, CONFIGURATION, SPAN DIRECTIONS, ETC, PRIOR TO ANY DEMOLITION OR CONSTRUCTION, AND SHALL NOTIFY THE ENGINEER OF RECORD IMMEDIATELY IF ANY DISCREPANCIES BETWEEN THESE PLANS AND ACTUAL FIELD CONDITIONS ARE FOUND.

NOTE:
WHERE STRAP HOLDOWN IS ATTACHED TO A SINGLE KINGSTUD & A SINGLE TRIMMER, ATTACH THE TWO TOGETHER w/ (2) 16d SINKERS @ 6" OC FULL HEIGHT OR w/ LTP4 @ 12" OC FULL HEIGHT.

NOTE:
SHEAR WALL SHEATHING MAY BE ON EITHER SIDE OF INDICATED WALL.



SHEAR WALL PLAN

1/4" = 1'-0"

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ORIGINAL: 07-04-25	ENG: RAM	DWN: SEH	CHK: RAM
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SHEAR WALL PLAN

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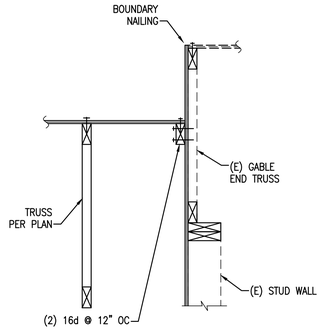
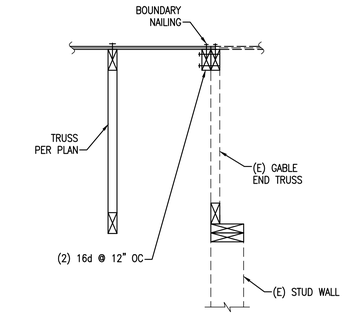
S6



NTS **12**



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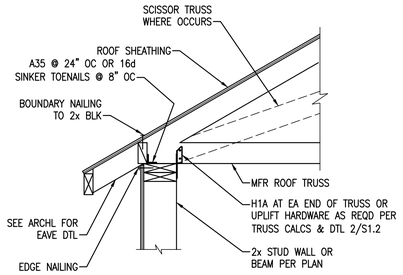

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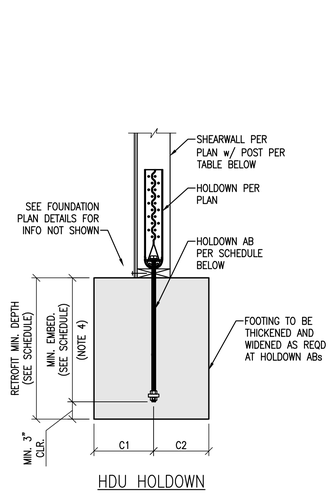
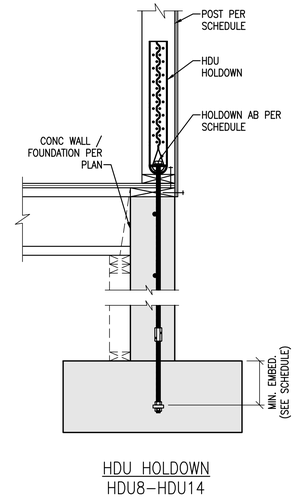
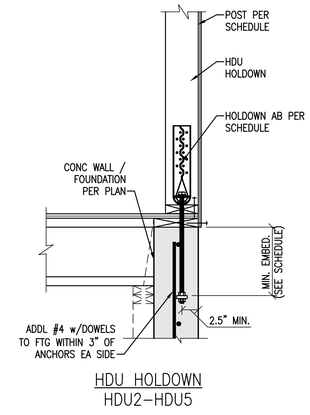


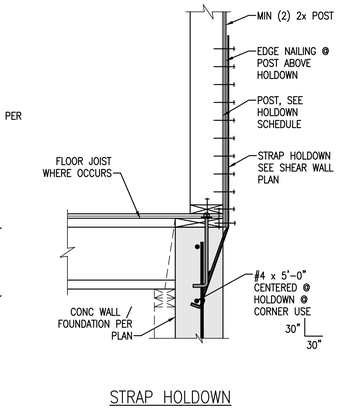
HDU HOLDOWN



HDU HOLDOWN
HDU8–HDU14



HDU HOLDOWN
HDU2–HDU5

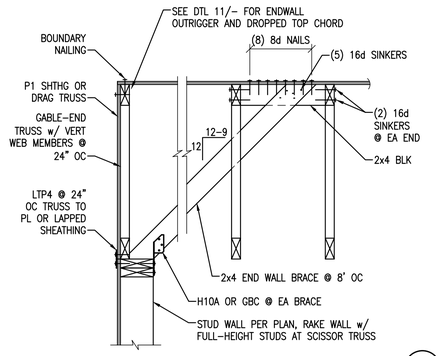


STRAP HOLDOWN

ANCHORAGE										
	ANCHORAGE (CAST IN PLACE)			ANCHORAGE (RETROFIT)		CAST IN PLACE OR RETROFIT				
HOLDOWN	SIMPSON STRONG-TIE PRODUCT	ALL THREAD ROD (NOTE 1)	EMBEDMENT	ALL THREAD ROD (NOTE 2, 3, & 6)	HOLE DIAMETER	C1	C2	RETROFIT DEPTH	POST	FOOTING
HDU2 – SDS2.5	SSTB16	ø5/8" F1554	9"	ø5/8" F1554	3/4"	6"	6"	6.5"	(2) 2x	PER FOUNDATION DETAILS
HDU4 – SDS2.5	SB5/8x24	ø5/8" F1554	12"	ø5/8" F1554	3/4"	8"	8"	5"	(2) 2x	SPREAD FOOTING REQUIRED
HDU5 – SDS2.5	SB5/8x24	ø5/8" F1554	18"	ø5/8" F1554	3/4"	9"	9"	6"	(2) 2x	SPREAD FOOTING REQUIRED
HDU8 – SDS2.5	NONE	ø7/8" F1554	7"	ø7/8" F1554	1"	9"	9"	10"	(3) 2x	SPREAD FOOTING REQUIRED
HDU11 – SDS2.5	NONE	ø1" F1554	7"	ø1" F1554	1–1/4"	11"	11"	10"	6x6	SPREAD FOOTING REQUIRED
HDU14 – SDS2.5	NONE	ø1" F1554	7"	ø1" F1554	1–1/4"	14"	14"	12"	6x6	SPREAD FOOTING REQUIRED

NOTES:
1. PROVIDE 2-1/8"x2-1/8"x3/8" STEEL PLATE w/ (2) NUTS @ CAST IN PLACE ANCHORS.
2. RETROFIT ALL-THREAD ROD IN HOLES w/ SIMPSON SET-3G EPOXY. PREPARE HOLES & INSTALL EPOXY PER MFR DIRECTIONS w/ EMBEDMENT AND EDGE DISTANCES AS SHOWN.
3. SIMPSON SET-3G EPOXY PER ICC-ES 4057.
4. INCREASE FOOTING DEPTH AS REQUIRED FOR 3" MIN COVER BELOW BOLT & COORDINATE EXACT LOCATIONS WITH THE FRAMING CONTRACTOR.
5. HOLDOWNS MAY BE INSTALLED 4" MAX FROM SHEAR WALL EDGE. BOUNDARY NAILING MUST BE PROVIDED @ STUDS ALIGNED WITH HOLDOWNS.
6. RETROFIT OPTION NOT PERMITTED IN STEM WALL APPLICATIONS.

NTS **1**



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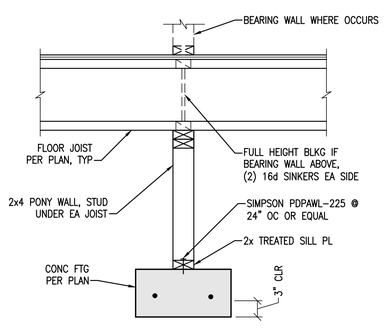

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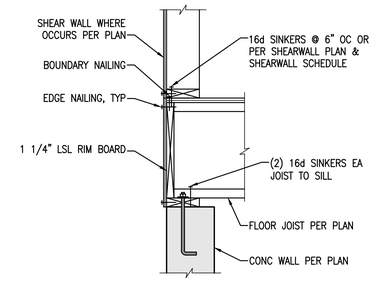

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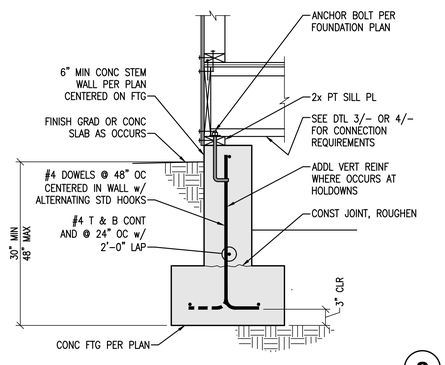

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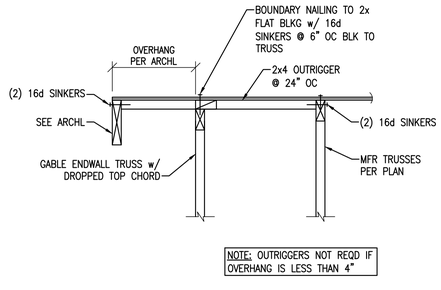

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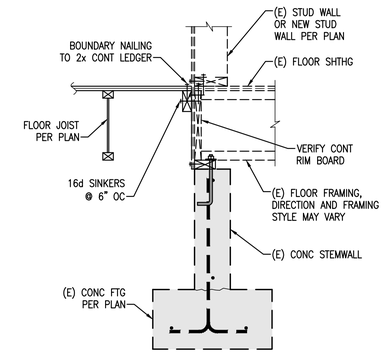

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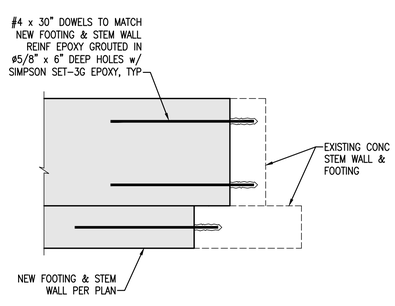

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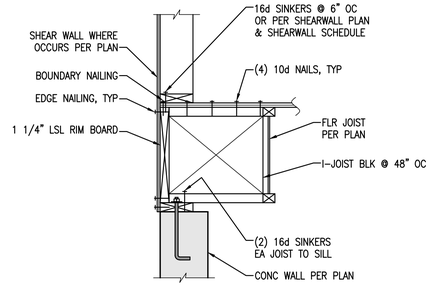

NTS **3**

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REV. #	DATE	BY:	DESCRIPTION
ORIGINAL:	07-04-25	ENG: RAM	DWN: SEH CHK: RAM

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STRUCTURAL DETAILS

NORTH CAROLINA PROFESSIONAL SEAL 049893 ENGINEER JACOB S. PROCTOR

07/02/2025

JACOB S. PROCTOR, P.E.
049893

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SD-1

STRUCTURAL CALCULATIONS
for
ANNA ROBERTS
at
347 SHUE ROAD
BROADWAY, NC 27505
for
EVOLUTION DRAFTING LLC

BY: **JACOB PROCTOR, P.E.**
Professional Engineer

NC Firm License No.COA #P-0742

PROJECT #: **U6489.0090.251**

DATE: **July 2, 2025**

DESIGNED BY HEE; CHECKED BY KSA

Note:
The calculations presented in this package are intended for a single use at the location indicated above, for the client listed above. These calculations shall not be reproduced, reused, "card filed", sold to a third party, or altered in any way without the written authorization of Vector Structural Engineering, LLC and Evolution Drafting LLC.

Design Criteria:

General:

Code: Structural design is based upon the North Carolina Building Code, 2018 Edition (2015 IBC)
Risk Category: II

Wind Criteria: ASCE7-10

Analysis Procedure: ASCE 7-10, Chapter 27 - Directional Procedure
Basic Wind Speed - Ultimate (mph): 120 (3-sec gust)
Wind Exposure: B

Seismic Criteria:

Analysis Procedure: ASCE 7-10, Equivalent Lateral Force Procedure
Site Class: D(efault)
Seismic Importance Factor, I_E: 1.0
Mapped Spectral Response Accelerations:
S_S = 0.136 S_1 = 0.066
S_{DS} = 0.145 S_{D1} = 0.106
Seismic Design Category: B
Seismic Force Resisting System: Wood Shearwalls
Seismic Response Coefficient, C_s: 0.022
Seismic Base Shear, V (k): 0.2

Snow Load:

Ground Snow Load, p_g (psf): 15
Snow Importance Factor, I_S: 1
Flat Roof Snow Load, p_f (psf): 11
Sloped Roof Snow Load, p_s (psf): 11

Live Loads:

Roof Live Load (psf): 20
Floor Live Load (psf): 40

General Notes:

- The contractor shall verify dimensions, conditions and elevations before starting work. The engineer shall be notified immediately if any discrepancies are found.
- The typical notes and details shall apply in all cases unless specifically detailed elsewhere. Where no detail is shown, the construction shall be as shown for other similar work and as required by the building code.
- These calculations are limited to the structural members shown in these calculations only. The connection of the members shown in these calculations to any existing structure shall be by others.
- The contractor shall be responsible for compliance with local construction safety orders. Approval of shop drawings by the architect or structural engineer shall not be construed as accepting this responsibility.
- All structural framing members shall be adequately shored and braced during erection and until full lateral and vertical support is provided by adjoining members.

Wood Construction:

- All dimensional lumber shall be Southern Yellow Pine #2 or equal
- All wood timbers shall be Southern Yellow Pine #1 5X And Larger Or Equal
- Wood construction code checks are per the National Design Specification for Wood Construction (NDS) and Standard for Design of Timber Frame Structures (TFEC 1)

Foundation / Concrete:

- All concrete mixing, placement, forming, and reinforcing installation shall be performed in accordance with the requirements of “Building Code Requirements for Reinforced Concrete”, ACI 318, latest applicable edition.
- Foundation concrete shall have a minimum compressive strength of 4000 psi at 28 days.
- Cement for all concrete shall be Type II with a minimum of 6% entrained air. Maximum aggregate size shall be 3/4".
- Reinforcing steel shall be per ASTM A615 Gr. 60, U.N.O.
- Foundation design is based upon presumptive soil capacities. Vector Structural Engineering, LLC strongly recommends independent soils testing be performed by a licensed geotechnical engineer to verify soil capacites, slope stability, and any other related soil parameters.

PROJECT: Anna Roberts **JOB NO.:** U6489.0090.251 **SUBJECT:** GRAVITY LOADS

ROOF			Increase due to pitch	Original loading
ROOF PITCH/12		4		
ASPHALT SHINGLES		4.22	1.05	4.00
1/2" PLYWOOD		1.58	1.05	1.50
FRAMING		3.00		
INSULATION		2.00		
1/2" GYPSUM CLG.		2.20		
M, E & MISC		2.30		
FUTURE SOLAR		3.00		
	DL	18.30		
	LL	20.00		
	SNOW	11.00		
SNOW INCLUDED IN LATERAL		0.0		

2ND FLOOR (WHERE OCCURS)		
FLOOR COVERING		1.00
3/4" T&G PLYWOOD		2.30
MFG TRUSSES / FRAMING		2.00
INSULATION		1.00
1/2" GYPSUM CEILING		2.20
PARTITION		2.00
M, E & MISC.		1.50
OTHER		0.00
	DL	12.00
	LL	40.00

EXTERIOR WALLS		
STUCCO/SIDING		3.50
2x6 FRAMING W/3 PLATES		1.30
INSULATION		1.00
1/2" GYPSUM		2.20
1/2" PLYWOOD		1.50
OTHER		0.50
	DL	10.00

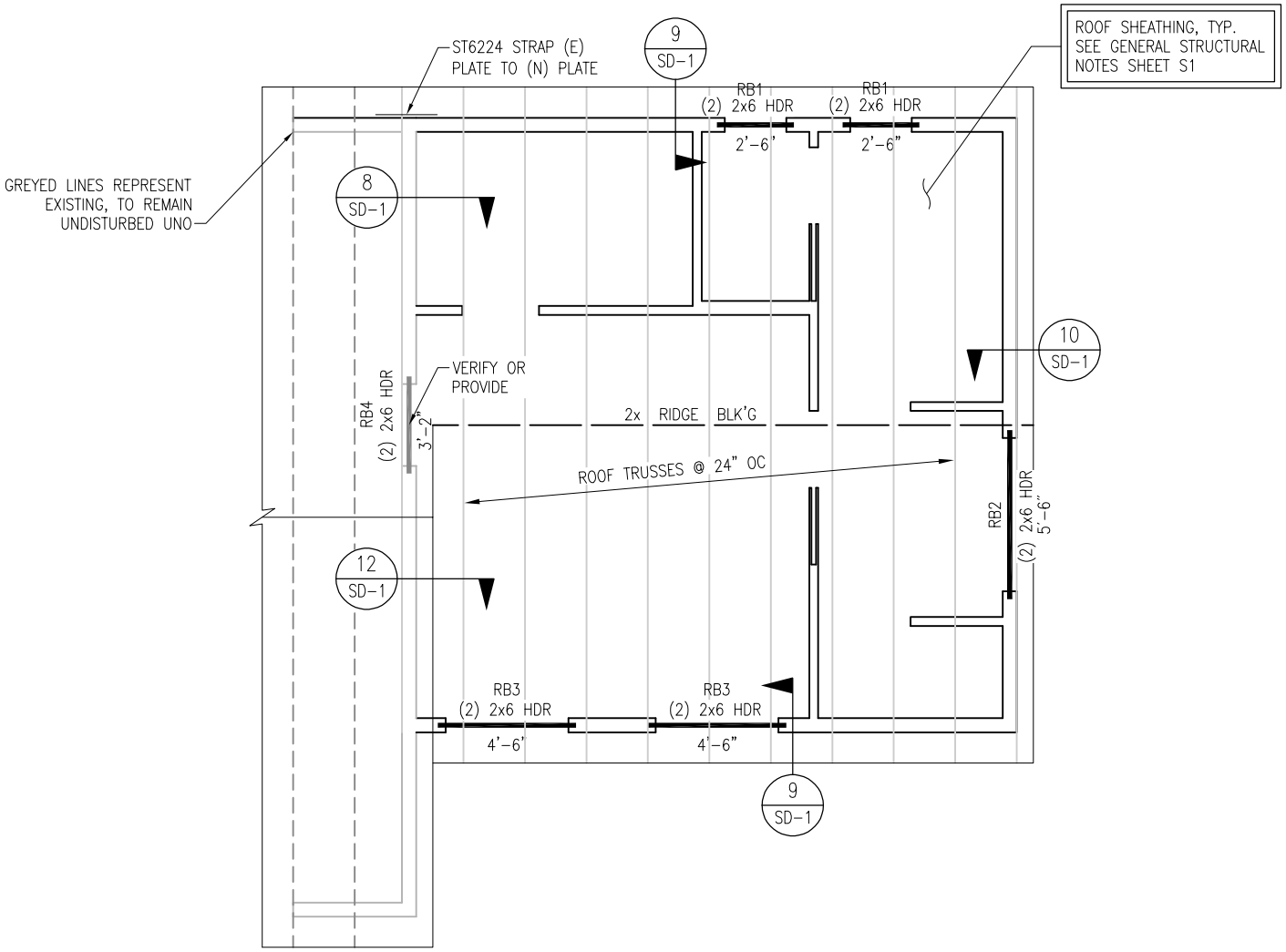
OVERFILL		
ASPHALT SHINGLES		4.00
1/2" PLYWOOD		1.50
RAFTERS & MISC		3.50
OTHER		0.00
	DL	9.00
	LL	20.00

TYPICAL ROOF OVERBUILD MAX SPAN TABLE

Grade	Size	Spacing (ft)	L_{max} (ft)	C_r	C_D	$C_{F,V}$	M_{allow} (ft-lb)	V_{allow} (lb)	Ctrl'g factor
DFL#2	2X4	2	6.20	1.15	1.25	1.50	482	382	TL def
DFL#2	2X6	2	9.80	1.15	1.25	1.30	1030	601	TL def
DFL#2	2X8	2	13.00	1.15	1.25	1.20	1653	792	TL def
DFL#2	2X10	2	16.00	1.15	1.25	1.10	2466	1011	Moment

BEAM KEYPLAN

Beam and header lengths shown on this keyplan are for design purposes only and do not represent actual beam or header lengths nor rough opening sizes. For project dimensions refer to the architectural drawings.



PROJECT: Anna Roberts **JOB NO.:** U6489.0090.251 **SUBJECT:** BEAMS

DESIGN LOADS:

Load Types:	Snow*I_S	Live	Dead
Roof	11	20	18
Floor		40	12
Wall			10

Add .2*S_{DS} to dead load? No 0 =.2*S_{DS}

Load Combinations:

LC 2: D+L

LC 3: D+(Lr or S)

LC 4: D+.75L+.75(Lr or S)

CRITERIA (L/)	D_{TL}	D_{LL}	D_{DL}	$D_{Lr/S}$
$A_{(BLANK)}$	240	360		240
B	240	480		240
C	600		800	240

Abbrev	GRADES		F_{bxx} (psi)	F_{vxx} (psi)	E_{xx} (psi)		g (lb/ft^3)
SYP#2	Southern Yellow Pine #2		750	175	1400000		34.3
SYP#1 5x	Southern Yellow Pine #1 5x		1,350	160	1500000		34.3
SYP#1	Southern Yellow Pine #1		1,000	175	1600000		34.3
24F-V4	Glue Laminated Timber 24F-V		2,400	265	1800000		39.9
24F-V8	Glue Laminated Timber 24F-V		2,400	265	1800000		39.9
LVL (2.0)	MICROLLAM LVL (2.0E)		2,600	285	2000000		41.8
LVL (2.1)	MICROLLAM LVL (2.1E)		2,600	285	2100000		41.8
LSL	TIMBERSTRAND LSL (1.3E)		1,700	400	1300000		41.8
PSL	PARALLAM PSL (2.0E)		2,900	290	2000000		41.8
STL36	GRADE 36 STEEL		21,600	14,400	29,000,000		490
STL46	GRADE 46 STEEL		27,700	16,500	29,000,000		490
STL50	GRADE 50 STEEL		30,000	12,934	29,000,000		490

Label	Length 'L' (ft)	Roof Trib (ft)	Floor Trib (ft)	Wall Trib (ft)	Add'l Live Load (plf)	Add'l Lr/S Load (plf)	Add'l Dead Load (plf)	Point Load From	React (A,B)	Dist 'a' (ft)	Point Live Load 'P_{LL}' (lb)	Point Roof Load '$P_{Lr/S}$' (lb)	Point Dead Load 'P_{DL}' (lb)	# PLIES	Grade	Size	"BM/HDR"	D CRITERIA	C_r	C_D	$C_{F,V,}C_L$	R_a (lb)	R_b (lb)	M_{max} (ft-lb)	M_{allow} (ft-lb)	V_{max} (lb)	V_{allow} (lb)	D_{TL} (in)	$D_{TLallow}$ (in)	D_{LL} (in)	$D_{LLallow}$ (in)	$D_{Lr/S}$ (in)	$D_{Lr/Sallow}$ (in)	GLB Camb	Check
RB1	2.5	11.1												(2)	SYP#2	2X6	H		1.00	1.25	1.28	530	530	331	1510	336	2406	0.006	0.125		0.083	0.003	0.125		0.22 M
RB2	5.5	1.5												(2)	SYP#2	2X6	H		1.00	1.25	1.28	168	168	230	1510	140	2406	0.022	0.275		0.183	0.011	0.275		0.15 M
RB3	4.5	11.1												(2)	SYP#2	2X6	H		1.00	1.25	1.28	958	958	1078	1510	763	2406	0.067	0.225		0.150	0.035	0.225		0.71 M
RB4	3.2	2												(2)	SYP#2	2X6	H		1.00	1.25	1.28	128	128	102	1510	91	2406	0.003	0.160		0.107	0.002	0.160		0.07 M

PROJECT: Anna Roberts **JOB NO.:** U6489.0090.251 **SUBJECT:** STUDS & OTHER MEMBERS

DESIGN LOADS (psf)

	Dead	Live	Snow*Is
Roof	18	20	11
Floor	12	40	
Exterior Wall	10		
Interior Wall	8		

Design Wind Speed	120
Wind Exposure	B

LOADING PARAMETERS	Label:	Typical Ext.	1 KS - 5'	2 KS - 14'
Wind/Wall Tributary (ft)		1.33	3.17	7.67
Bending Axis		Strong	Strong	Strong
Roof Tributary (ft)		11.1	11.1	11.1
Floor Tributary (ft)				
Additional Dead Load (lbs)				
Additional Floor Live Load (lbs)				
Additional Roof Live Load (lbs)				
Additional Snow Load (lbs)				
Location for Wind Loading		C&C Zone 5	C&C Zone 5	C&C Zone 5
Mean Roof Height (ft)		15	15	15
Axial Loads (lbs):				
Dead		319	759	1838
Floor Live		0	0	0
Roof Live		295	703	1702
Snow		162	386	936
Bending Load (plf):				
Wind		43.1	102.5	224.6
MEMBER PROPERTIES				
Strong-Axis Unbraced Length, l_1 (ft)		8	8	8
Weak-Axis Unbraced Length, l_2 (ft)		1	1	1
Compression Edge Unbraced Length, l_u (ft)		1	1	1
Grade		SYPSTUD	SYPSTUD	SYPSTUD
Size		2x6	2x6	2x6
Quantity of Members		1	1	2
SPECIAL CONDITIONS				
Moisture Category		Normal	Normal	Normal
Temperature Category		≤100°	≤100°	≤100°
Incising?		No	No	No
Repetitive Member Category		Rep. (Special)	Rep. (Special)	Rep. (Special)
Finish Type		Brittle	Brittle	Brittle
SECTION PROPERTIES				
Width, b (in)		1.5	1.5	1.5
Depth, d (in)		5.5	5.5	5.5
Moment of Inertia, I (in^4)		20.796875	20.796875	20.796875
Section Modulus, S (in^3)		7.5625	7.5625	7.5625
DESIGN VALUES				
F_{bx} (psi)		450	450	450
F_{by} (psi)		450	450	450
F_c (psi)		725	725	725
E_{xx} (psi)		1300000	1300000	1300000
E_{yy} (psi)		1300000	1300000	1300000
E_{minxx} (psi)		470000	470000	470000
E_{minyy} (psi)		470000	470000	470000
RESULTS				
D+L		6%	15%	18%
D+Lr		10%	25%	30%
D+S		9%	20%	25%
D+0.75L+0.75Lr		9%	22%	26%
D+0.75L+0.75S		8%	19%	23%
D+0.6W		35%	88%	99%
D+0.75L+0.42W+0.75Lr		26%	68%	78%
D+0.75L+0.42W+0.75S		25%	65%	74%
Deflection Limit (L/)		240	240	240
Deflection (L/)		2101	883	806
Column Slenderness, l_e/d		17.5	17.5	17.5
Beam Slenderness, R_B		7.8	7.8	7.8
Unity Check		**35%**	**88%**	**99%**

PROJECT: Anna Roberts **JOB NO.:** U6489.0090.251 **SUBJECT:** FOOTINGS AND FOUNDATIONS

FOOTINGS

Assumed Soil Bearing Pressure	q=	1500	psf
Footing Embedment/Frost Depth	d_f=	12	in
Soil Weight	W_s=	110	pcf
Wall Width	wwall=	3.5	in
Col Width	wcol=	5.5	in
Slab Thickness	t_s=	4	in

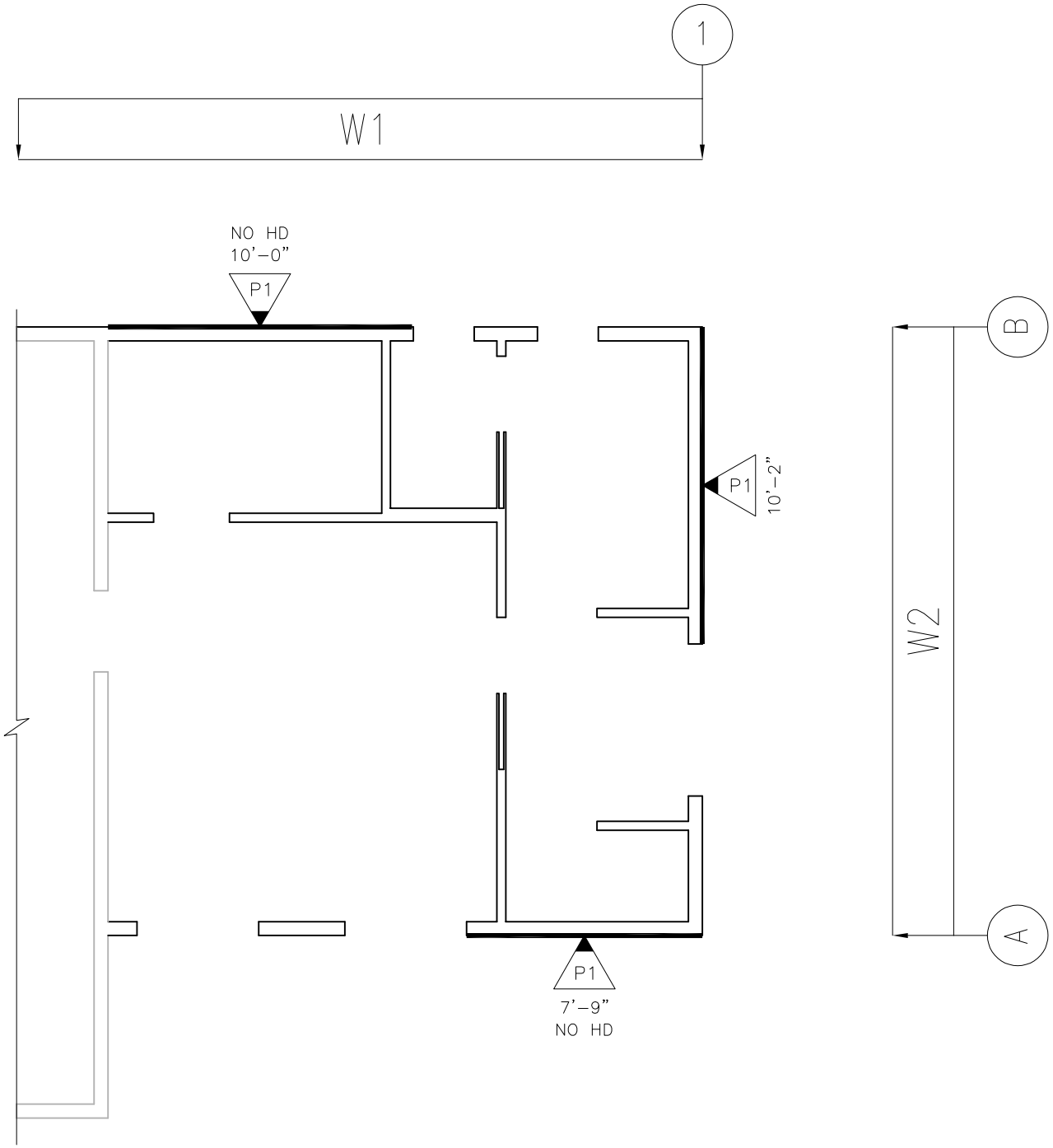
Continuous Footings:

Title	Width (in)		Depth (in)	Loads (plf)	#4 Bars Lengthwise	Alt Bar Size	# of Bars Lengthwise	Ext Uplift Weight (plf)	Int Uplift Weight (plf)
CF1.00	12		10	1,500	2			139	169
CF1.33	16		10	2,000	2			186	226
CF1.50	18		10	2,250	2			209	254

Spread Footings:

Title	Width (in)	Length (in)	Depth (in)	Loads (kip)	#4 Bars Lengthwise	Alt Bar Size	# of Bars Lengthwise	Ext Uplift Weight (lbs)	Int Uplift Weight (lbs)
F2.00	24	24	10	6.00	3			557	677
F2.50	30	30	10	9.38	3			870	1057
F3.00	36	36	12	13.50	4			1305	1740
F3.50	42	42	12	18.38	5			1776	2368
F4.00	48	48	12	24.00	6			2320	3093
F4.50	54	54	14	30.38	7			3426	4404
F5.00	60	60	14	37.50	8			4229	5438
F5.50	66	66	16	45.38	10			5848	7310

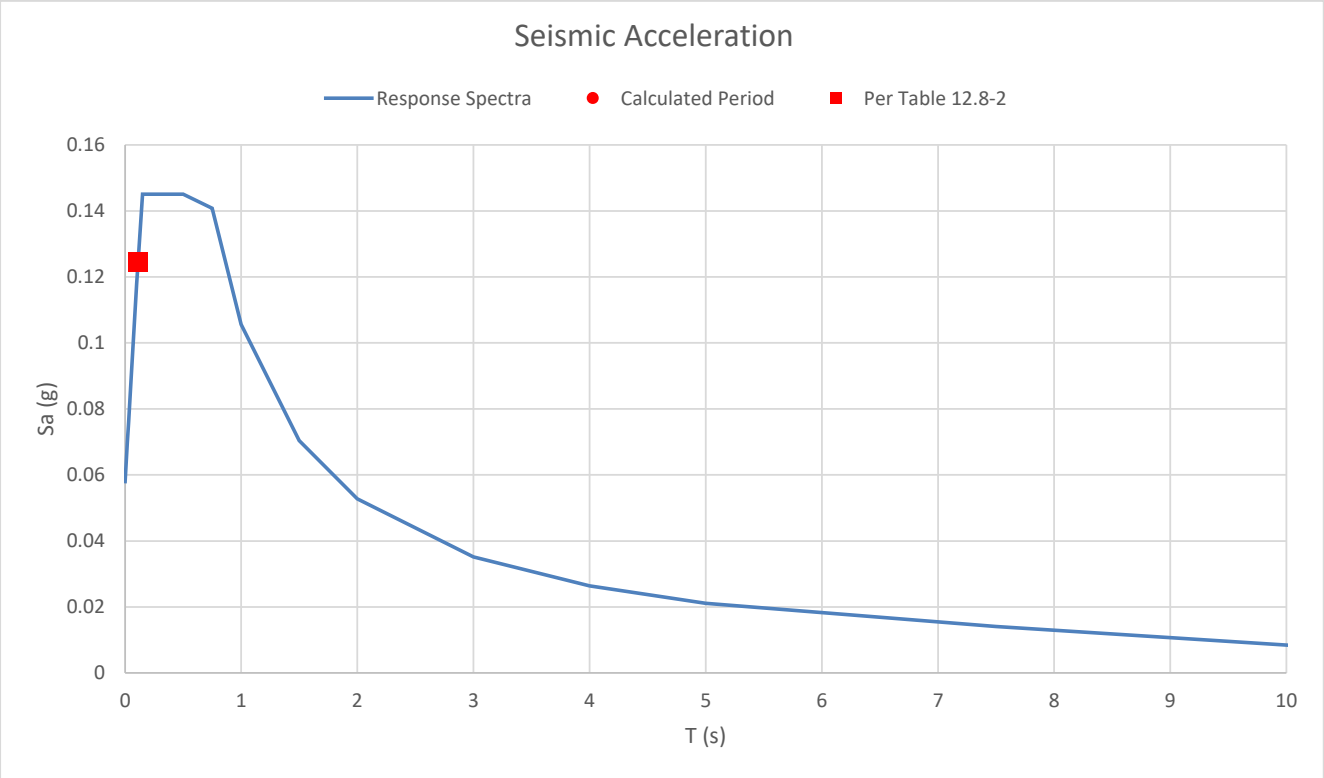
SHEAR WALL KEYPLAN



PROJECT: Anna Roberts **JOB NO.:** U6489.0090.251 **SUBJECT:** LATERAL LOADS

Seismic Parameters (ASCE 7-10 Chapters 11, 12, & 22)

Site Class:	D	S. 11.4.2	N =	1	S. 12.8.2.1	Determination of SDC:		
R =	6.5	T. 12.2-1	C_t =	0.02	T. 12.8-2	Per Table 11.6-1:	A	
S_s =	0.136	F. 22-1	h_n (ft) =	10	S. 12.8.2.1	Per Table 11.6-2:	B	
S_1 =	0.066	F. 22-2	x =	0.75	T. 12.8-2	SDC:	B	S. 11.6
F_a =	1.6	T. 11.4-1	T =		Calculated	I_E =	1.00	T. 1.5-2
F_v =	2.4	T. 11.4-2	T_a =	0.112	E. 12.8-7	C_{SMAX}=	0.144	E. 12.8-4,5
S_{MS} =	0.22	E. 11.4-1	T_0=	0.15	S. 11.4.5	C_S=	0.022	E. 12.8-2
SM1 =	0.16	E. 11.4-2	Ts=	0.728	S. 11.4.5	C_{SMIN}=	0.010	E. 12.8-6,7
S_{DS} =	0.145	E. 11.4-3	C_U=	1.69	T. 12.8-1	$C_{SCONTROL}$=	0.022	S. 12.8.1.1
S_{DI} =	0.106	E. 11.4-4	T_L=	8	F. 22-12	$C_{SCONTROL}$*.7=	0.016	S. 2.4.1
Risk Category:	II		S_a=	0.125	S. 11.4.5	Seismic Analysis Req'd?	No	IBC 1613.1
						Perform Seismic Analysis?	No	

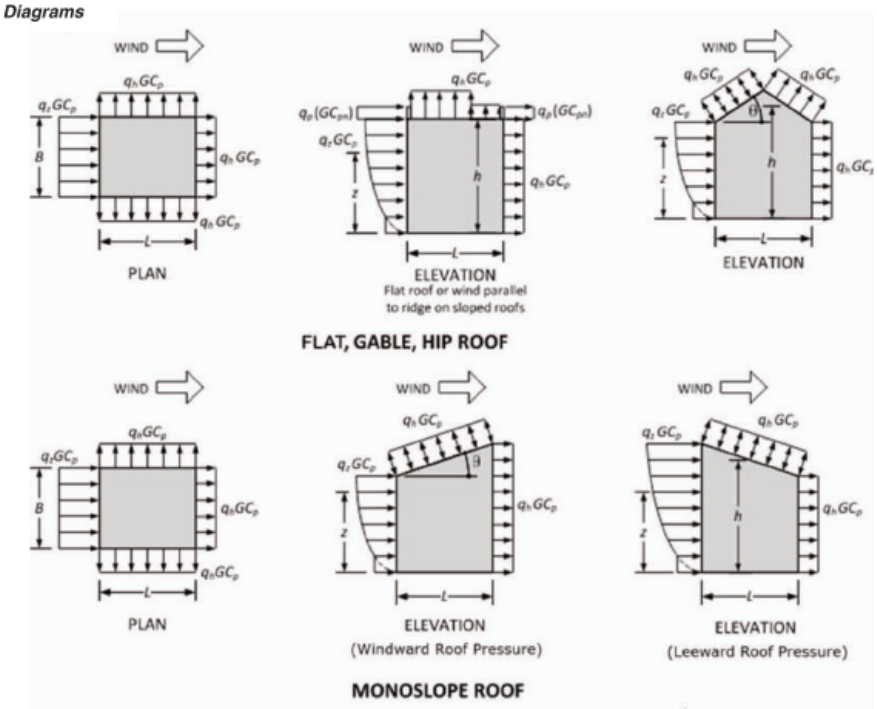


Wind Parameters (ASCE 7-10 Chapter 26)

MAIN WIND FORCE RESISTING SYSTEM DIRECTIONAL METHOD FIGURE 27.3-1

Risk Category:	II	Greatest Mean Roof Height, h (ft):	15	L/B (long)	L/B (tran)
Basic Wind Speed (mph):	120	Building Length (ft):	20	1	1
Exposure Category:	B	Building Width (ft):	20	h/L (long)	h/L (tran)
K_{zt}:	1.00	Enclosure Type:	Enclosed	0.75	0.75
	1.00	Gcpi:	0.18		
Gust Effect Factor, G:	0.85	Velocity Press. Exposure Coefficient, K_h:	0.57		
		Structure Type:	Building - MWFRS		
		Main Ridge to Long Direction:	Parallel to		
		Wind Directionality Factor, K_d:	0.85		
		Velocity Pressure, q_h [psf]:	21.19	$p = qK_dGC_p - qK_dGC_{pi}$	

Diagrams



PROJECT: Anna Roberts **JOB NO.:** U6489.0090.251 **SUBJECT:** LINE LOADS

Roof DL	18	psf
Seismic		
Snow	0	psf
Floor DL	12	psf
Wall DL	10	psf
Period, T	0.11	sec

Level Descriptions

ASCE7 12.8.3
k= 1
$\Sigma w_i h_i^k$= 104000

Label	Height (ft)	$W_{control}$ (lb)	V_{norm} (lb)	V_{redist} (lb)	Redist Fact
Roof	10	10400	232	232	1.00
		0	0	0	1.00
		0	0	0	1.00
		0	0	0	1.00
		0	0	0	1.00

Total Weight (lb)	10400
Total Base Shear (lb)	232

Estimated Total Weight in Longitudinal Direction	10400
Estimated Total Weight in Transverse Direction	10400
Percent difference in estimated weights	0.0%

Seismic Line Loads

Label	Width	Level	Direction	Number of times to include	Roof Trib (ft)	Floor Trib (ft)	Wall Trib Height (ft)	Ext Wall Length (ft)	Other Weight (lb/ft)	Total Weight (lb/ft)	Total Force (lb/ft)	Cvx - Redist Factor	Revised Force (lb/ft)	Force Redist to 1
ω1	20	Roof	TRANS	1	20		4	80		520	12	1.00	12	NO
ω2	20	Roof	LONG	1	20		4	80		520	12	1.00	12	NO

Wind Line Loads

Label	Roof Pitch /12	'h' Mean Roof Height at level (ft)	Total Exposed Roof Area (sqft)	'z' Average Wall Elevation (ft)	Total Exposed Wall Area (sqft)	'z' Top of Parapet Elevation (ft)	Total Exposed Parapet Area (sqft)	Wind Direction to Main Ridge	Windward only?	Roof Type	Parapet Condition	Roof Force (plf)	Wall Force (plf)	Parapet Force (plf)	Total Force (plf)
ω1	4	10.0	82.0	4.0	80.0			Normal	N	Gable/Hip		32.8	79.6		112.4
ω2	0	10.0	0.0	4.0	80.0			Parallel	Y	Gable/Hip			64.0		64.0

VECTOR ENGINEERS

PROJECT: PROJECT NAME **JOB NO.:** U64 **SUBJECT:** SHEAR WALL SHEET EXPLANATION

Global ρ value applied

Calculated ρ values and controlling locations

Aspect ratio limits

Loads applied along line, as calculated previously

Diaphragm shear calculations

PERF/ FTAO wall calcs where applicable

$\rho_{Applied}$ =	1
Min Diaphragm Width (ft) =	20
Allowable Seismic Aspect Ratio =	3.5
Allowable Wind Aspect Ratio =	3.5
Comb. Overstrength Factors: (Ω-0.5)/1.2 =	2.08

ρ_i	Loc
1.00	A-1ST
1.00	A-2ND

ρ calculated in acc… Section 12.3.4.1

Roof DL (psf) = 44 (includes seismic snow where occurs)
Floor DL (psf) = 12

LINE: A **1ST STORY** R=6.5 **Timber Framed Shearwall Calculations**

Line Loads (plf)				Loads from above					Applied Loads (plf)		Diaphragm Shear, R=6.5 (plf)					Perf/FTAO Wall Info	
Load	Trib w (ft)	Span (ft)	Line	%	Location	0.7E (lbs)	0.6W (lbs)	ρ*Seis	Wind	Drag (ft)	Seis (max vs. allow)		Wind (max vs. allow)			(Not Applicable)	
ωI	33.5	67		1.00	Offset	0	0	0.0	68.1	8	0	166	285	232			
	0			1.00	Offset	0	0	0.0	0.0	8	0		0				
				1.00	Above	0	0										
					Total	0	**2280**										

Plate h (ft)= 8
Max opening height (ft)= 8
Apply aspect ratio reduction? Yes
Opening elevation

100% Perforated SW? No
Force Transfer @ Openings? No

Include Ω for irregularities (above)? No

Shear Length (ft)= 8
Wall DL (psf)= 10

Story V (lbs)= 0
Max allow. drift (in) 1.92

Total seismic shear applied at level, for calculating ρ

Amplified seismic deflection of wall

Selection of wall type, 'No' for both means a segmented wall

Shear-Wall Length (ft)	$Roof_{DL}$ 'w' (ft)	$Floor_{DL}$ 'w' (ft)	$Other_{DL}$ 'w' (plf)	Tension From Above (lb)	Wall Type	Sill Type	Holdown Strap	HD Capacity (Stem/floor config)	OTM (**wind**, seismic) (ft-lb)	(0.6-.2SDs) *RM (ft-lb)	Aspect Ratio	Aspect Ratio Reduc.	Seis. Shear (plf)	Seis. Wall Cap. (plf)	Wind Shear (plf)	Wind Wall Cap. (plf)	Sill Plate Cap. (plf)	Tension (lb)	HD Capacity	Max Shear-Wall Δ 1.0E (in)
5	2				P1	S1	STHD10	8"-Midwall	**11402**	870	1.60	1.00	0	260	285	365	388	2106	4195	0.47
3	2				P1	S1	HDU2		**6841**	313	2.67	0.75	0	195	285	274	388	2176	3075	0.66

Information on individual wall piers

Applied unit shears and unit shear capacities (reduced where appropriate)

Add'l Comments: Max: 0.66

LINE: A **1ST STORY** R=6.5 **Timber Framed Shearwall Calculations**

Line Loads (plf)				Loads from above					Applied Loads (plf)		Diaphra…					Perf/FTAO Wall Info		Rdl (ft)	2
Load	Trib w (ft)	Span (ft)	Line	%	Location	0.7E (lbs)	0.6W (lbs)	ρ*Seis	Wind	Drag (ft)	Seis (ma…					Ltotal (ft)	20	Fdl (ft)	
ωI	15	30		1.00	Offset	0	0	57.9	59.4	20	0	166			allow)			DL (plf)	168
	0			1.00	Offset	0	0	0.0	0.0	20	0					Wall type	P1	Opening (ft)	12
				1.00	Above	0	0									HD	STHD10	8"-Corner	
					Total	868	**891**									T (lb)	-649	HD cap	2940

Perforated or FTAO calculations

Co factor when applicable

Hold down information for global wall overturning

Plate h (ft)= 8
Max opening height (ft)= 3
Apply aspect ratio reduction? Yes
Opening elevation 2

50% Perforated SW? No
Force Transfer @ Openings? Yes

Include Ω for irregularities (above)? No

Shear Length (ft)= 8
Wall DL (psf)= 10

Story V (lbs)= 173
Max allow. drift (in) 1.9…

Seis (plf) 109 Cap (plf) 260
Wind (plf) 111 Cap (plf) 365
Strap (lb) 428 Δ (in) N/A
Strap Type CS16 1705

Required only for FTAO method

Shear-Wall Length (ft)	$Roof_{DL}$ 'w' (ft)	$Floor_{DL}$ 'w' (ft)	$Other_{DL}$ 'w' (plf)	Tension From Above (lb)	Wall Type	Sill Type	Holdown Strap	HD Capacity (Stem/floor config)	OTM (**wind**, seismic) (ft-lb)	(0.6-.2SDs) *RM (ft-lb)	Aspect Ratio	Aspect Ratio Reduc.	Seis. Shear (plf)	Seis. Wall Cap. (plf)	Wind Shear (plf)	Wind Cap.	HD Capacity	Max Shear-Wall Δ 1.0E (in)
3	PERF/FTAO SHEAR-WALL CALCULATIONS APPLY - SEE ABOVE										1.00	1.00						
5											0.60	1.00						

Length of full-height segements in PERF/FTAO

Maximum unit shear and strap forces calculated by Diekmann method for FTAO walls

Add'l Comments: Max:

PROJECT: Anna Roberts **JOB NO.:** U6489.0090.251 **SUBJECT:** SHEAR WALLS

$\rho_{Applied}$ =	1
Min Diaphragm Width (ft) =	20
Allowable Seismic Aspect Ratio =	3.5
Allowable Wind Aspect Ratio =	3.5
Comb. Overstrength Factors: (Ω-0.5)/1.2=	2.08

ρ_i	Loc	Fp/Fx
1.00	1-1ST	1.30

Roof DL (psf) = 18 (includes seismic snow where occurs)
Floor DL (psf) = 12

ρ calculated in accordance with ASCE7- 10 Section 12.3.4.1
No Exception in ASCE 7 12.3.4.2b met?

LINE: 1 1ST STORY — R=6.5 — Timber Framed Shearwall Calculations

Line Loads (plf)			Loads from above					Applied Loads (plf)		Diaphragm Shear, R=6.5 (plf)			Perf/FTAO Wall Info	
Load	Trib w (ft)	Span (ft)	Line	%	Location	0.7E (lbs)	0.6W (lbs)	ρ*Seis	Wind	Drag (ft)	Seis (max vs. allow)	Wind (max vs. allow)	(Not Applicable)	
ω1	10	20		1.00	Offset				67.4	10.42	166	65 / 232		
				1.00	Offset					10.42				
				1.00	Above									
					Total		**674**							

Plate h (ft)= 8 — Include Ω for irregularities (above)? No
Max opening height (ft)= 8
Apply aspect ratio reduction? Yes — 100% Perforated SW? No — Shear Length (ft)= 10.42 — Story V (lbs)=
Opening elevation — Force Transfer @ Openings? No — Wall DL (psf)= 10 — Max allow. drift (in) 1.92

Shear-Wall Length (ft)	$Roof_{DL}$ 'w' (ft)	$Floor_{DL}$ 'w' (ft)	$Other_{DL}$ 'w' (plf)	Tension From Above (lb)	Wall Type	Sill Type	Holdown Strap	HD Capacity (Stem/floor config)	OTM (**wind**, seismic) (ft-lb)	(0.6-.2SDs)*RM (ft-lb)	Aspect Ratio	Aspect Ratio Reduc.	Seis. Shear (plf)	Seis. Wall Cap. (plf)	Wind Shear (plf)	Wind Wall Cap. (plf)	Sill Plate Cap. (plf)	Tension (lb)	HD Capacity	Max Shear-Wall Δ 1.0E (in)
10.42	1.5				P1		NO HD	8"-Corner	**5395**	3485	0.77	1.00		260	65	365		183	200	

Add'l Comments: Max:

LINE: B 1ST STORY — R=6.5 — Timber Framed Shearwall Calculations

Line Loads (plf)			Loads from above					Applied Loads (plf)		Diaphragm Shear, R=6.5 (plf)			Perf/FTAO Wall Info	
Load	Trib w (ft)	Span (ft)	Line	%	Location	0.7E (lbs)	0.6W (lbs)	ρ*Seis	Wind	Drag (ft)	Seis (max vs. allow)	Wind (max vs. allow)	(Not Applicable)	
ω2	10	20		1.00	Offset				38.4	10	166	38 / 232		
				1.00	Offset					10				
				1.00	Above									
					Total		**384**							

Plate h (ft)= 8 — Include Ω for irregularities (above)? No
Max opening height (ft)= 8
Apply aspect ratio reduction? Yes — 100% Perforated SW? No — Shear Length (ft)= 10 — Story V (lbs)=
Opening elevation — Force Transfer @ Openings? No — Wall DL (psf)= 10 — Max allow. drift (in) 1.92

Shear-Wall Length (ft)	$Roof_{DL}$ 'w' (ft)	$Floor_{DL}$ 'w' (ft)	$Other_{DL}$ 'w' (plf)	Tension From Above (lb)	Wall Type	Sill Type	Holdown Strap	HD Capacity (Stem/floor config)	OTM (**wind**, seismic) (ft-lb)	(0.6-.2SDs)*RM (ft-lb)	Aspect Ratio	Aspect Ratio Reduc.	Seis. Shear (plf)	Seis. Wall Cap. (plf)	Wind Shear (plf)	Wind Wall Cap. (plf)	Sill Plate Cap. (plf)	Tension (lb)	HD Capacity	Max Shear-Wall Δ 1.0E (in)
10	11.1				P1		NO HD		**3072**	8394	0.80	1.00		260	38	365		-532	200	

Add'l Comments: Max:

LINE: A 1ST STORY — R=6.5 — Timber Framed Shearwall Calculations

Line Loads (plf)			Loads from above					Applied Loads (plf)		Diaphragm Shear, R=6.5 (plf)			Perf/FTAO Wall Info	
Load	Trib w (ft)	Span (ft)	Line	%	Location	0.7E (lbs)	0.6W (lbs)	ρ*Seis	Wind	Drag (ft)	Seis (max vs. allow)	Wind (max vs. allow)	(Not Applicable)	
ω2	10	20		1.00	Offset				38.4	7.75	166	50 / 232		
				1.00	Offset					7.75				
				1.00	Above									
					Total		**384**							

Plate h (ft)= 8 — Include Ω for irregularities (above)? No
Max opening height (ft)= 8
Apply aspect ratio reduction? Yes — 100% Perforated SW? No — Shear Length (ft)= 7.75 — Story V (lbs)=
Opening elevation — Force Transfer @ Openings? No — Wall DL (psf)= 10 — Max allow. drift (in) 1.92

Shear-Wall Length (ft)	$Roof_{DL}$ 'w' (ft)	$Floor_{DL}$ 'w' (ft)	$Other_{DL}$ 'w' (plf)	Tension From Above (lb)	Wall Type	Sill Type	Holdown Strap	HD Capacity (Stem/floor config)	OTM (**wind**, seismic) (ft-lb)	(0.6-.2SDs)*RM (ft-lb)	Aspect Ratio	Aspect Ratio Reduc.	Seis. Shear (plf)	Seis. Wall Cap. (plf)	Wind Shear (plf)	Wind Wall Cap. (plf)	Sill Plate Cap. (plf)	Tension (lb)	HD Capacity	Max Shear-Wall Δ 1.0E (in)
7.75	11.1				P1		NO HD		**3072**	5042	1.03	1.00		260	50	365		-254	200	

Add'l Comments: Max: