

As directed by the North Carolina Board of Architecture and Registered Interior Designers, architectural seals are not required for - and should not be placed by NVR on - these plans and specifications. These plans and specifications are prepared solely by, and for the exclusive use of, NVR, Inc. and are solely for a family residence consisting of eight or fewer attached units with grade level exits and which is not part of or physically connected with any other buildings or residential units. NVR, Inc. does not provide any third party the opportunity to customize these plans. The respective drawings contained herein shall be used only as construction assembly drawings by NVR, Inc. and its subcontractors. Any unauthorized use of these plans with the written consent of NVR, Inc. is prohibited.

GRAND CAYMAN

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STREET ADDRESS -----		APT. NO. -----
CITY -----	STATE -----	ZIP -----



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NVR, Inc.
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FIRST FLOOR SQUARE FOOTAGE	
DESCRIPTION	TOTAL SQ. FT.
1ST FLOOR CRAWL / SLAB FOUNDATION (BASE SF)	1533 SF
	1533 SF
GARAGE SQUARE FOOTAGE	
DESCRIPTION	TOTAL SQ. FT.
TWO CAR GARAGE CRAWL / SLAB FOUNDATION	443 SF
	443 SF
UNFINISHED SQUARE FOOTAGE	
DESCRIPTION	TOTAL SQ. FT.
REAR COVERED PORCH (ADD. SF)	140 SF
FRONT COVERED PORCH (ADD. SF)	25 SF
	165 SF
TOTAL FINISHED SQUARE FOOTAGE	
DESCRIPTION	TOTAL SQ. FT.
1ST FLOOR CRAWL / SLAB FOUNDATION (BASE SF)	1533 SF
	1533 SF
SET NO. - VERSION	SHEET NO. PAGE NO.
GCM00 - 01	CS-1
RELEASE NO. ----	

STRUCTURAL DESIGN CRITERIA	
· ALL LOCAL AND STATE CODES	
· ROOF LIVE LOAD	20 psf
· ULTIMATE WIND SPEED	130 mph
· WIND EXPOSURE CATEGORY	B
· SEISMIC DESIGN CATEGORY	A / B

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GENERAL

- These plans and specifications are designed for the exclusive use by NVR, Inc. for the purpose of residential construction. As such, these products are offered for sale in NVR, Inc. communities only. NVR, Inc. is a production homebuilder and does not provide the opportunity to customize these plans. The respective drawings contained here in shall only be used as construction assembly drawings by NVR, Inc. and their sub-contractors. Any unauthorized use of these plans without the written consent of NVR, Inc. is prohibited. All standard notes, section markers, elevation markers and title markers that reference "A-#" shall be considered "NC-#" for sheet reference.
- These plans are subjected to modification as necessary to meet code requirements or to facilitate mechanical/plumbing installations or to incorporate design improvements.
- These plans are not to be scaled for construction purposes. Dimension lines and notes supersede all scale references.
- Single Family Attached/Detached - Automatic residential fire sprinkler systems shall be installed in accordance with NCRCB P2404 or NFPA 13D where required.
- This note sheet only covers major code requirements. The plans are intended to conform to all current applicable codes or engineering design in accordance with Section 301.13.

CODE ANALYSIS

- This note sheet only covers major code requirements. The plans are intended to conform to all current applicable codes including, but not limited to:
 - NCRC 2018, NCMC 2018, NCFG 2018, NCFGC 2018, NEC 2020 w/ NC Amendments, NCEC 2018, NCFGC 2018
- Constr. Type: V-B
- Max Stories: 3

ENERGY AND MECHANICAL

- Insulation requirements per 2018 NCRC Chapter 11, Energy Efficiency, or Chapter 4 of the 2018 North Carolina Energy Conservation Code (NCECC), or Chapter 4 of the 2015 International Energy Conservation Code (IECC), Residential Energy Efficiency by the prescriptive method. See NVR "Standard Energy Package" for field procedures and details.

R-values shown below are the minimum used.

CLIMATE ZONE	FENESTRATION U-FACTOR	GLAZED FENESTRATION SHGC	CEILING R-VALUE	FRAME WALL R-VALUE 2x4 / 2x6	FLOOR R-VALUE	BASEMENT WALL R-VALUE UNFIN. / FIN.	SLAB R-VALUE # DEPTH	GRAVEL SPACE WALL R-VALUE
3	0.35	0.30	38	15 / 19	19	5 / 15	NA	5 / 15
4	0.35	0.30	38	15 / 19	19	10 / 15	10	10 / 15

- All HVAC equipment is sized based on ACCA Manual J calculations. Ductwork is sized using ACCA Manual D. Minimum efficiencies of equipment are as listed below. Upgrades for improved energy performance may be installed.
 - Air conditioner - 14 SEER
 - Gas furnace - 92% / 96%
 - Heat Pump - 8.2 HSPF
- Winter interior design temperatures shall be 70°F and summer interior design temperatures shall be 75°F. Exterior design temperatures vary based on geographic location and are listed on the Manual J calculations.
- Roof ventilation calculations are based on the following specifications:
 - Ridge vent: Minimum 18 sq. in. of vent per linear foot
 - Soffit vent: Minimum 4.9 sq. in. of vent per linear foot
 - Roof Jack (box vent): Minimum 45 sq. in. of vent per unit
- See NVR "Standard Energy Package" for field procedures and details.

DESIGN LOADS

Table of Loads for House Structure, Per Table 301.5

Floor Living Areas	- 40# P.S.F. (Live) - 10# P.S.F. (Dead) unless noted otherwise by calculations						
Floor Sleeping Areas	- 30# P.S.F. (Live) unless noted otherwise by calculations - 10# P.S.F. (Dead) unless noted otherwise by calculations						
Garage Floors	- 50# P.S.F. (Live) - 50# P.S.F. (Dead)						
Roof Areas	- Top Chord - 20# P.S.F. (Live) - 10# P.S.F. (Dead) - Bottom Chord - 10# P.S.F. (Live) (Attics without storage) - 20# P.S.F. (Live) (Attics with limited storage) - 10# P.S.F. (Dead) - 30# P.S.F. (Live)						
Habitable Attics	- Areas up to 150 mph ultimate wind speed per Table R301.2(4) - Exposure category 'B'						
Trusses	- Areas up to 150 mph ultimate wind speed per Table R301.2(4) - Exposure category 'B'						
Walls	- Areas up to 150 mph ultimate wind speed per Table R301.2(4) <table border="1"> <tr> <td>Vult</td> <td>115 mph</td> <td>130 mph</td> </tr> <tr> <td>Vasd</td> <td>84 mph</td> <td>101 mph</td> </tr> </table> Note: Linear interpolation between contour lines permitted.	Vult	115 mph	130 mph	Vasd	84 mph	101 mph
Vult	115 mph	130 mph					
Vasd	84 mph	101 mph					
Stairs	- 40# P.S.F. (Live) - 10# P.S.F. (Dead)						
Allowable deflection of structural members per IRC Table R301.1							

Design Criteria

- Design Codes:
- National Design Specification for Wood Construction by National Forest Products Association.
 - Specification for the Design Fabrication and Erection of Structural Steel for Buildings by American Institute of Steel Construction.

Materials:

Headers*	Southern Pine (KD-19), No. 1 Grade
Studs	Spruce-Pine-Fir, Stud Grade
Jacks	Spruce-Pine-Fir, Stud Grade
Beams**	Southern Pine (KD-19), No. 1 Grade
Joists	2x10 Hem-Fir (KD-19), No. 2 Grade or better (NCLIB & MWPA) 2x8 Southern Pine (KD-19), No. 1 Grade or better 2x10 Spruce-Pine-Fir (KD-19), No. 2 Grade or better (NL6A)
LVL	1.4E Minimum

- * Where required, Laminated Veneer Lumber may be used per Engineering Structural Steel - A5.1M, A56
- ** Where required, Laminated Veneer Lumber may be used per Engineering Structural Steel - A5.1M, A56

FOUNDATIONS

- All plain and reinforced concrete shall comply with requirements in ACI 318.
- Concrete footings shall be poured a maximum 5' slump, 5 bag mix, and 2500 psi minimum strength per Table R402.2. Concrete walls shall be poured a maximum 5' slump, 5 1/2-bag mix, and 3000 psi minimum strength per Foundation Wall Design table below. Special soil and or wall height conditions may require a higher psi mix.
- Walls and footings designed as unreinforced unless otherwise specified on foundation plans or details. Special soil and/or site conditions may require the addition of reinforcing.
- Footing frost depth to be no less than 12" per R403.1.4 and Table R301.2(1).
- Minimum Soil Bearing Capacity shall be 2,000 PSF per Table R401.4.1.
- Slab requirements:
 - Interior slabs on grade (excluding garage slabs) to be minimum 3-1/2" concrete (may be represented on plans as nominal 4") over 4" sub-base, with vapor barrier (6-mil polyethylene) as required per Section 506 and a minimum 2500 PSI per Table R402.2.
 - Non-structural garage slabs shall be nominal 3-1/2" thick and shall be installed on compacted / undisturbed soil per Table R402.2. Slabs shall be 3500 PSI air-entrained concrete.
 - Structural garage slabs utilizing grade beams shall be nominal 4" thick. Slabs shall be 3500 PSI air-entrained concrete.
 - Porch slab and exterior concrete work shall be nominal 4" minimum 3500 PSI air-entrained concrete with 6x6 MIL4X1/4 mesh or equivalent fiber mesh reinforcement.
- Unconditioned crawl spaces shall have a minimum net area of ventilation not less than 1 square foot for each 150 square feet of area, unless the ground surface is covered by a Class I vapor retarder, in which case the minimum net area of ventilation shall not be less than 1 square foot for each 1500 square feet of area. One such ventilating opening shall be within 3 feet (914 mm) of each corner of the building, per R408.1.2.
- Foundation drains shall be located per local codes and according to local site conditions. Drain discharge by gravity or mechanical means to conform with approved site plan and installed per Section R405.1.
- The top course of block of foundation walls shall be semi-solid block or open cores of hollow block shall be filled with mortar.
- Block piers to be solid block or mortar-filled hollow block.
- A poured concrete foundation wall designed to withstand an equivalent fluid weight of 30# per cubic ft. may be substituted where masonry units (block) are shown on plans.
- Concrete and masonry foundation walls shall be dampproofed with min. 3/8" portland cement parging from footing to top of finished grade. The parging shall be covered with a coat of approved bituminous material applied at the recommended rate per R406.1.
- Where required, concrete and masonry foundation walls shall be waterproofed with an approved membrane extending from footing to top of finished grade. The joints in the membrane shall be lapped and sealed with an adhesive compatible with the waterproofing membrane. Waterproofing to be in accordance with R406.2.
- Reserved for future use.
- Foundation framing anchors shall be 1/2"x18" anchor bolts with 7" minimum embedment or Simpson Strong-Tie MASA / USP FAS (16 gauge steel, galvanized) or equivalent set in concrete or grouted steel, 1"-0" maximum from corners and spaced at a maximum of 6' o.c. and in the middle third of the width of the plate. For walls connecting offset braced wall panels, those 24" in length or shorter shall have min. (1) anchor strap and those 12" or shorter can be installed without anchor straps. Townhouses in seismic design category "C" shall require a 224" x 3" x 3" plate washer per R403.1.6.1 and maximum anchor bolt spacing for buildings over two stories shall be 4'.
- Steel columns and bases shall be given a shop coating of rust-inhibitive paint or equivalent to provide corrosion resistance per R401.2.
- For masonry veneers:
 - Per R103.8.4.1 - Corrugated sheet metal veneer ties shall be a minimum of No. 22 U.S. gauge by 7/8 inch. Each tie shall be spaced not more than 32" o.c. horizontally and 24" o.c. vertically and shall support not more than 2.61 square feet of wall area. For townhouses in Seismic Design Category C and in wind areas of more than 30 pounds per square foot pressure, each tie shall support not more than 2 square feet of wall area.
 - Additional metal ties shall be provided around all wall openings greater than 16 inches (406 mm) in either dimension. Metal ties around the perimeter of openings shall be spaced not more than 3 feet (914 mm) on center and placed within 12 inches (305 mm) of the wall opening.
 - Per R103.2 - One layer of No. 15 asphalt felt or other approved water-resistive barrier shall be provided behind brick.
 - Per Table R103.8.4 - Provide minimum 1-inch air space between brick veneer and sheathing.
 - Per R103.8.6 - Provide minimum 3/16" diameter weep holes at 33" on center maximum, located immediately above the flashing.
 - Per R103.8.5 - When veneer of brick, clay tile, concrete, or natural or artificial stone are used, 6 mil plastic flashing shall be attached to the sheathing wherever necessary to prevent moisture penetration behind the veneer. See NVR Flashing Details.
- Reserved for future use.
- Foundation wall strip footing thickness to be 8" (or 6" with a single story) unless otherwise noted as specified by engineering. Strip footing projections beyond the face of the foundation wall shall not exceed the footing thickness. Bump out footings, pier pads, and any other footing identified as being greater than 8" in thickness shall not be reduced.
- Block foundation walls may be substituted for poured foundation walls shown on foundation plans provided all requirements of Section R404 are met.
- Termite treatment provided below slabs or to framing members per R310.1

FOUNDATION WALL DESIGN (c)

NCRCB PRESCRIPTIVE CODE OR ENGINEERED DESIGN PER ACI 332

WALL HEIGHT	WALL THICKNESS	LATERAL SOIL UNBALANCED LOAD (a)	VERTICAL UNBALANCED FILL	VERTICAL REINFORCING (b)	HORIZONTAL REINFORCING (c)
8'-0"	45	150	6'-0"	NOT REQUIRED	2- #4 BARS (f)
		120	7'-0"	NOT REQUIRED (d)	3- #4 BARS (de)
		90	8'-0"	NOT REQUIRED (d)	3- #4 BARS (de)
	60	150	7'-0"	#4 @ 22" O.C. (d)	3- #4 BARS (de)
		120	8'-0"	NOT REQUIRED	2- #4 BARS (f)
		90	7'-0"	NOT REQUIRED	2- #4 BARS (f)
10'	45	150	6'-0"	NOT REQUIRED (d)	4- #4 BARS (de)
		120	7'-0"	#4 @ 19" O.C. (d)	4- #4 BARS (de)
		90	8'-0"	#4 @ 19" O.C. (d)	4- #4 BARS (de)
	60	150	7'-0"	NOT REQUIRED (d)	4- #4 BARS (de)
		120	8'-0"	#4 @ 15" O.C. (d)	4- #4 BARS (de)
		90	8'-0"	#4 @ 19" O.C. (d)	4- #4 BARS (de)

NOTE: BACKFILLING OF THE FOUNDATION SHALL NOT TAKE PLACE BEFORE THE BASEMENT SLAB IS IN PLACE AND THE FLOOR FRAMING IS ERRECTED OR UNLESS WALLS ARE ADEQUATELY BRACED.

- SOIL CLASSES GM, GC, SM, SM-SC AND ML - 45 PSF
SOIL CLASSES SC, MH, ML-CL AND CL - 60 PSF
- SPACINGS SHOWN IS BASED UPON $F_y = 60,000$ PSI
STEEL FOR $F_y = 40,000$ PSI STEEL, REDUCE SPACING BY 0.67
- CONCRETE SHALL HAVE A COMPRESSIVE STRENGTH OF NOT LESS THAN 3000 PSI
- ENGINEERED DESIGN PER ACI 332-14, REQUIREMENTS FOR RESIDENTIAL CONCRETE CONSTRUCTION
- FOR ALL WALL HEIGHTS, ONE HORIZONTAL BAR SHALL BE LOCATED WITHIN THE TOP 24", ONE IN THE BOTTOM 24" WITH THE REMAINING BARS EQUALLY SPACED. MAINTAIN 2" OF CONCRETE COVER BETWEEN INSIDE FACE OF WALL AND FACE OF HORIZONTAL BARS.
- ONE BAR WITHIN 12" OF TOP AND AT MID-HEIGHT OF WALL PER TABLE R404.1.2(1).
- ONE BAR WITHIN 12" OF TOP AND ONE EACH AT THIRD POINT OF WALL HEIGHT PER TABLE 404.1.2(1).

PLANS

- Habitable attics and sleeping rooms shall have a window or door as a second means of egress that shall be minimum 5.7 sq. ft. operable area (5.0 sq. ft. if at grade level) with maximum sill height 44" above finish floor (min. hgt. 24", min. width 20" per R310.1).
- All emergency escape and rescue openings shall have a minimum net clear operable area of 4 sq. ft. The minimum net clear opening height shall be 22" and a minimum net clear opening width of 20". Emergency escape and rescue openings must have a minimum total glazing area of not less than 5 sq. ft. in the case of a ground window and not less than 5.7 sq. ft. in the case of an upper story window per R310.2.1. Window wells where required, shall be installed per R310.2.3 with a minimum of 9 sq. ft. and a minimum horizontal projection and width of 36". Wells with a greater depth of 44" shall have permanently affixed ladder or steps per R310.2.3.1.
- Clear opening heights for exterior doors to be 6'-6" minimum per R311.2. All interior doors providing egress from habitable rooms shall have nominal minimum dimensions of 2'-6" by 6'-8" per R311.6.1. Habitable rooms with double doors less than 5'-0" in total width (less than 2'-6" per door slab) shall have a total opening width of at least 2'-6" with no slide bolts or locking devices installed on either door.
- Sliding glass drs/patio drs/ndvs must be safety glazed per R308.4.
- Interior stairway shall have minimum head room of 6'-8" per 311.7.2 and minimum tread depth of 9" and maximum riser height of 8 1/4". Handrails are required for stairs with four or more risers and shall have minimum height of 34" and maximum height of 38" above treads and landings. Handrail to have maximum 4 1/2" projection into width of stair per Section R311.7. Enclosed accessible space under stairs shall have walls, under stair surface and any soffits protected on the enclosed side with 1/2" gypsum board per R302.7.
- Guard rails to have minimum height of 36" and shall not have openings from the walking surface to the required guard height which allow passage of a sphere 4 inches in diameter per R312.
- The triangular openings at the open side of stair, formed by the riser, tread and bottom rail of a guard, shall not allow passage of a sphere 6 inches (153 mm) in diameter per R312.1.3.
- Where exterior landings or floors serving the required egress door are not at grade, they shall be provided with access to grade by means of a stairway in accordance with Section R311.7 (see item #5 above) or a ramp in accordance with Section R311.8.
- Handrails shall be installed on exterior stairs having (4) or more risers per R311.7.8. Guards shall be installed at exterior porches / decks that are located more than 30 inches (762 mm) measured vertically to the floor or grade below at any point within 36 inches (914 mm) horizontally to the edge of the open side. Insect screening shall not be considered as a guard.
- All flashing used (including at windows, doors, and with stone or masonry veneer) shall be corrosion-resistant per R103.4. See NVR Flashing Details.
- Wood framed bearing walls shall 2 x 6 at 24" o.c. maximum or 2 x 4 at 16" o.c. maximum per Table R602.3(B) and Table R602.3(5) unless otherwise noted on plans.
- All exterior sheathing to be structural sheathing designed in accordance with R602.10.
- An approved water-resistive barrier shall be applied over sheathing of exterior walls per Section R103.2.
- Interior sheathing shall be 1/2" gypsum wall board unless otherwise noted. Exceptions may include, but are not limited to, special requirements for wall bracing and fire separation.
- Screw fastening is typical for gypsum installation and nailing will only be permitted at the perimeter of the board.
 - All screws shall be corrosion-resistant Type W 1-1/4" drywall screws.

SCREW FASTENING SCHEDULE			
Framing Spacing	WITH ADHESIVE		
	Ceilings	Load-brg. walls	Non-load-brg. walls
16	16	24	24
24	16	16	24
WITHOUT ADHESIVE			
Framing Spacing	Ceilings	Load-brg. walls	Non-load-brg. walls
16	12	16	16
24	12	16	12

- For 1/2" wallboard, nails shall be 1-1/4" long, 1/4" head and .098 diameter shanks with annular ring or acceptable equivalent and comply with ASTM C514.
 - For 5/8" wallboard, nails shall be 1-3/8" long, 1/4" head and .098 diameter shanks.
- Garages shall be completely separated from the residence and attic area by not less than 1/2" gypsum board applied to the exterior side of the habitable rooms shall be separated from a habitable room above by not less than 5/8" type X gyp. board. Where a structure is supporting a floor-ceiling assembly due to living space above the garage, the structure shall also be protected by not less than 1/2" gypsum board per Section R302.6. Openings and penetrations through the separation shall be protected by sealing the area around the penetration per Section R302.5. The garage door shall be a 20-minute fire-rated door and be equipped with a self-closing device installed per Section R302.5.1.
 - Asphalt shingles shall be installed per section R405.2. For roof slopes of 2:12 through 4:12, in lieu of two layers of underlayment, a self-adhering polymer-modified bitumen underlayment shall be used per section R405.1.1 Exception #1.
 - Attic spaces shall be ventilated w/ ridge and soffit vents unless otherwise noted. Venting provided per R606.2.
 - Fireblocking shall be installed between ceiling and floor openings per R302.11. Draftstopping to be installed in accordance with R302.12.
 - Water closet, lavatory or bidet shall not be set closer than 15 inches from its center to any side wall, partition or vanity or closet than 30 inches center-to-center between adjacent fixtures. There shall be a clearance of not less than 21 inches in front of the water closet, lavatory or bidet to any wall, fixture or door per R210.5.1
 - Heating and cooling equipment installation shall be in accordance with IRC Chapter 14 and the International Mechanical Code.
 - Mechanical fireplaces shall be installed per Section R1004 and 1005.
 - Single family attached structures to have 2-hour dwelling unit separation wall continuous to roof deck. Roofing material to be minimum class "C" over approved fire retardant wood decking extending 4' each side of dwelling unit separation wall per R302.2 and R302.3.
 - Untreated wood shall be minimum 8" above finish grade per R311.7 item #2.
 - Bottom plates on slabs and any wood in contact w/ concrete or masonry to be pressure treated material per Section R311.
 - Exterior egress swing doors shall open onto a landing not more than 8 1/4" below the top of the threshold when door swings in and 1 1/2" below the top of the threshold when the door swings out. The landing shall extend a minimum of 36" in the direction of travel and be at least the width of the doorway served per R311.3.
 - Air exhaust and intake openings that terminate outdoors shall be protected with corrosion-resistant screen, louvers, or grills having a min. opening size of 1/4" and maximum of 1/2" in any dimension per R303.6.
 - Fasteners and connectors for pressure preservative-treated wood shall be hot-dipped galvanized steel.
 - Windows that have an operable opening more than 12" above finished grade or surface below, the lowest part of the clear opening of the window shall be a minimum of 24" above the finished floor of the room in which the window is located. Glazing between the floor and 24" shall be fixed or have openings through which a 4" dia. sphere cannot pass per Section R312.2.
 - The final grade shall fall a minimum of 6 inches within the first 10 feet of the foundation per R401.3.
 - One- and two-family dwelling construction (R302.1.1).
Vinyl or aluminum soffit material shall be securely attached to framing members and use an underlayment material of either fire retardant treated wood, 3/4-inch wood sheathing or 5/8-inch gypsum board. Venting requirements shall apply to both soffit and underlayment and shall be per Section R606. Where the property line is 10 feet or more from the building face, the provisions of this code section shall not apply.
Townhouse construction (R302.2.5).
Projections extending into the fire-separation distance shall have not less than 1-hour fire-resistive construction on the underside. Vinyl or aluminum soffit material shall be securely attached to framing members and use an underlayment material of either fire retardant treated wood, 3/4-inch wood sheathing or 5/8-inch gypsum board. Venting requirements shall apply to both soffit and underlayment. Vents shall be nominal 2-inch continuous or equivalent intermittent and shall not exceed the minimum net free air requirements of Section R606.2 by more than 50%. Vents in soffit are not allowed within 4 feet of fire walls or property lines per R302.2.5 and R302.2.6.
 - 1-hour fire-rated construction required on projections within 2' to 3' of lot line per R302.1. No projections allowed within 2' of property line.
1-hour fire-rated construction required on townhouse eaves within 3' of the property line.
Note: Single Family Detached product will NOT be built within 3' of the property line.
 - Wall bracing is designed in compliance with Section R602.10. When wall bracing is beyond the criteria for a prescriptive approach, the structure is analyzed utilizing engineering in compliance with the North Carolina Building Code (NCBC). Refer to house-specific wall bracing detail sheets and wall bracing standard details. Adhesive attachment of wall sheathing, including Method 6B, shall not be permitted in Seismic Design Category C.
 - Minimum floor sheathing shall be 5/8" tongue & groove decking underlayment grade plugged and sanded, exterior glue, glued and nailed on joists to meet, "American Plywood Association" approved glued floor system, unless otherwise specified.

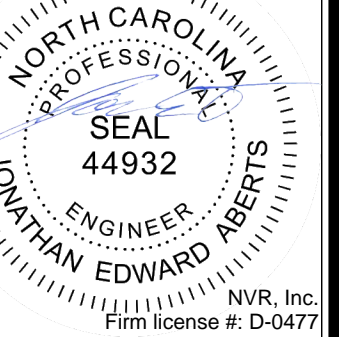
ELECTRICAL

- Ground-fault and arc-fault circuit interrupter protection is provided per NFPA 70 (National Electric Code).
- Electric panel box installation to be in accordance with NFPA 70, Article 408 Section III. Location may vary by design.
- Approved smoke detectors shall be installed in each sleeping room; outside each separate sleeping area in the immediate vicinity of the bedrooms; and on each additional story of the dwelling, including basements and habitable attics but not including crawl spaces and uninhabitable attics. Where more than one smoke detector is required, the devices shall be interconnected in such a manner that the actuation of one alarm will activate all of the alarms in the individual unit. All smoke detectors shall receive their primary power from the building wiring and be equipped with a battery backup.
- Unless listed for installation in such locations, smoke detectors shall be installed at least 10 feet from a cooking appliance, at least 3 feet from the door to a bathroom containing a tub or shower, at least 3 feet from forced air supply registers, and at least 3 feet from the tip of a ceiling fan blade. In sleeping rooms, smoke detectors should be located in the vicinity of the room entrances. They shall be installed at the highest portion of the ceiling (including tray or coffered ceilings) or within 12 inches vertically from the highest point in rooms with sloped ceilings.
- Interior stairs shall be provided with an artificial light source in the vicinity of each landing or directly over each stair section and capable of illuminating treads and landings to a level not less than 1fc measured at the center of the tread or landing per R303.7.
- Outlets within 6' of a sink must be GFI protected.
- An approved carbon monoxide alarm shall be installed outside of each separate sleeping area in the immediate vicinity of the bedrooms. Where a fuel-burning appliance is located within a bedroom or its attached bathroom, a carbon monoxide alarm shall be installed within the bedroom. R315.3.
- Outlets installed in laundry areas must be GFI protected.

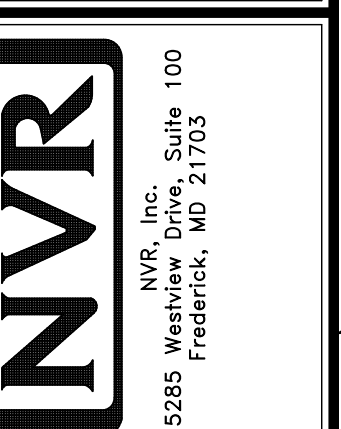
As directed by the North Carolina Board of Architecture and Registered Interior Designers, architectural seals are not required for these plans and specifications.

REV. NO.	DATE	REMARKS
1	10/19/18	1. MET - CODE UPDATES FOR 2018 NCRCB
2	9/11/18	1. MET - UPDATED ENERGY NOTES
3	12/16/22	1. MET - REVISE NOTE FOR 2x4 OR 2x6 EXTERIOR WALLS

01/24/2025



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SET NO.	VERSION	DATE:	OPTION
1	1		

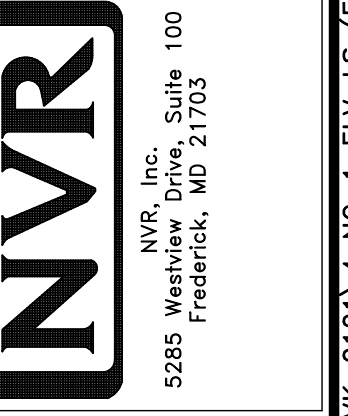
NOBEL NCR 2018 SPEC SHEET
DRAWING TITLE
SINGLE FAMILY ATTACHED
SINGLE FAMILY DETACHED
OPTION DESCRIPTION
NC State Building Code - Residential Code 2018

SHEET NO. 99-1

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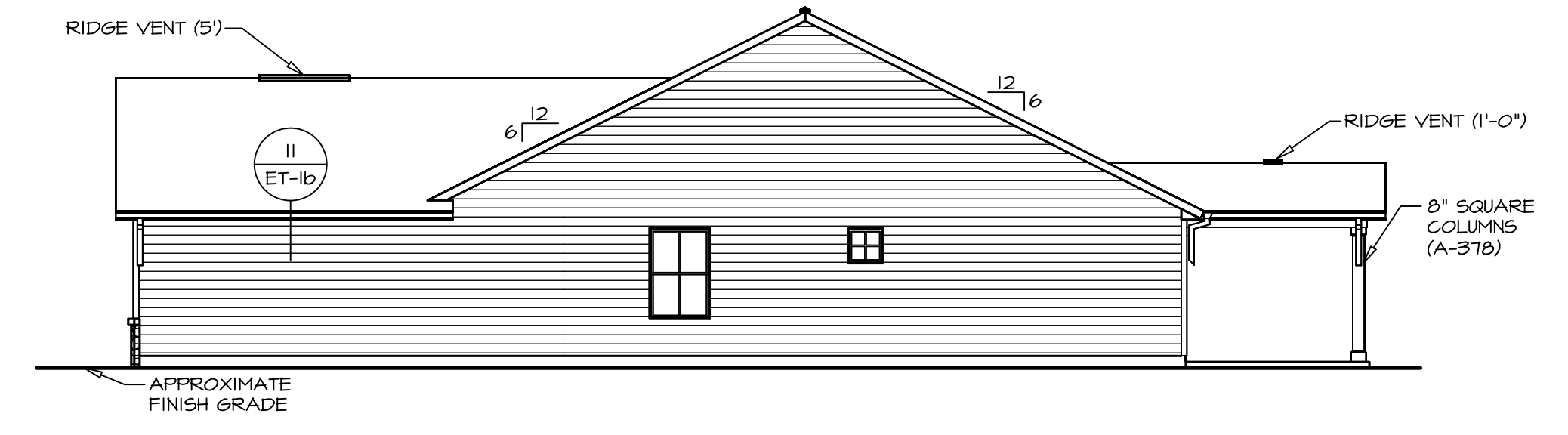
DIV-COMM-LOT-UNIT
 COMM-LOT
 STREET ADDRESS
 CITY STATE ZIP

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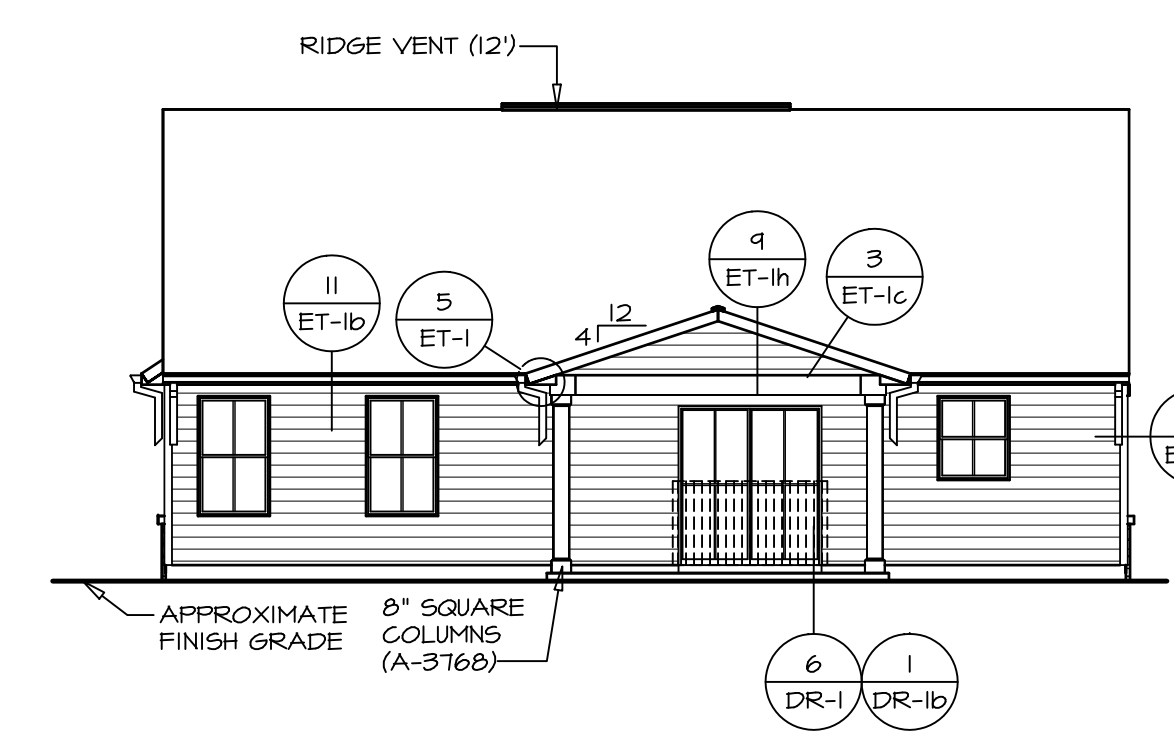


SET NO. 60M00
 VERSION 01
 RELEASE NO. ----
 DRAWN BY BN
 DATE: 02/21/20
 OPTION FSA

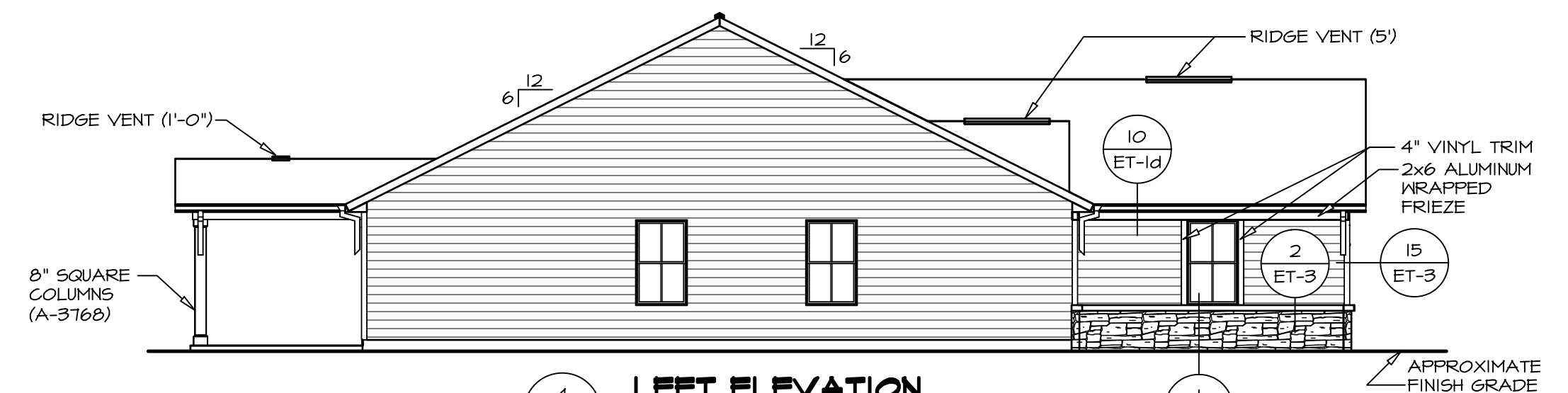
SHEET NO. MODEL GRAND CAYMAN DRAWING TITLE ELEVATIONS OPTION DESCRIPTION SLAB FOUNDATION



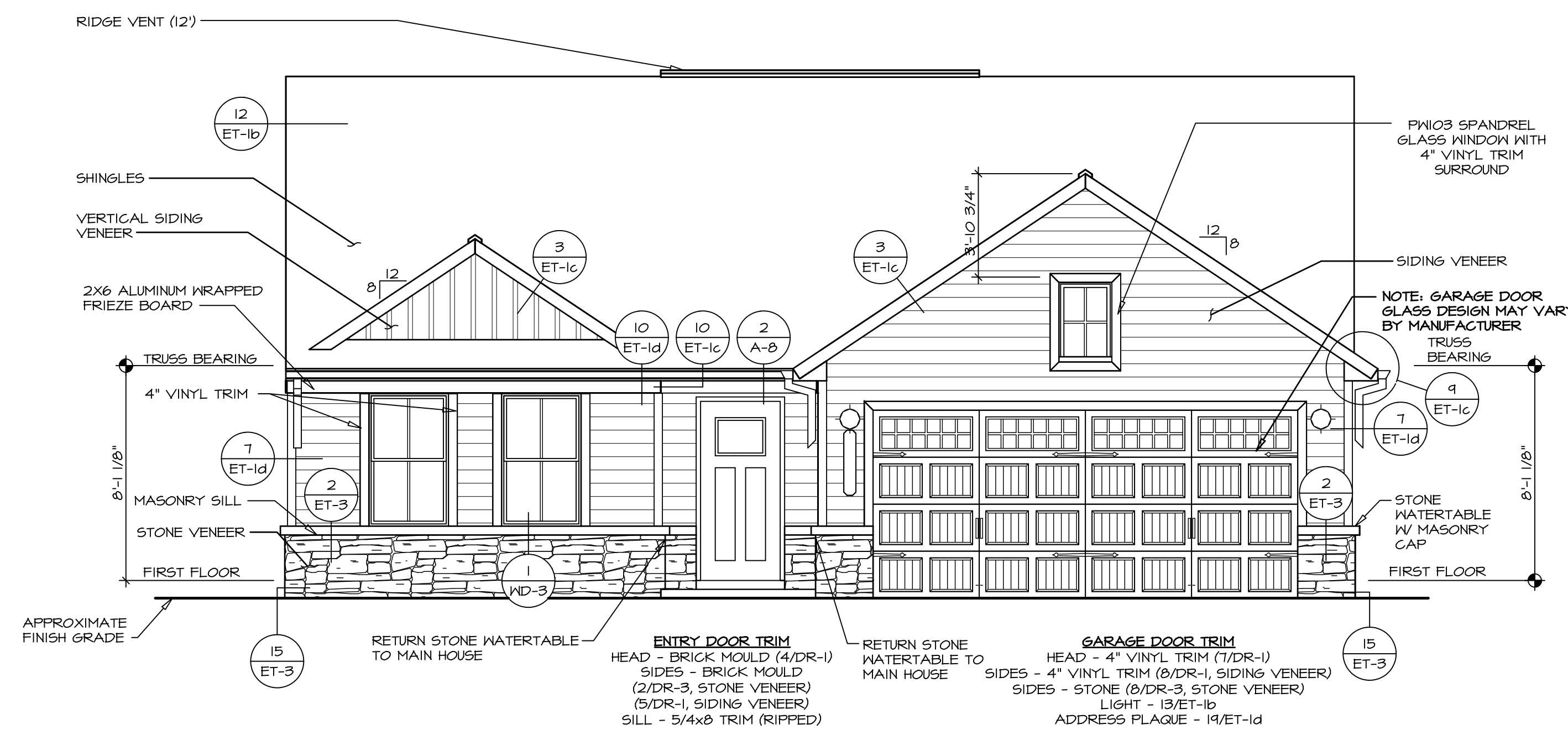
2 RIGHT ELEVATION
 SCALE: 1/8" = 1'-0"



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



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



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

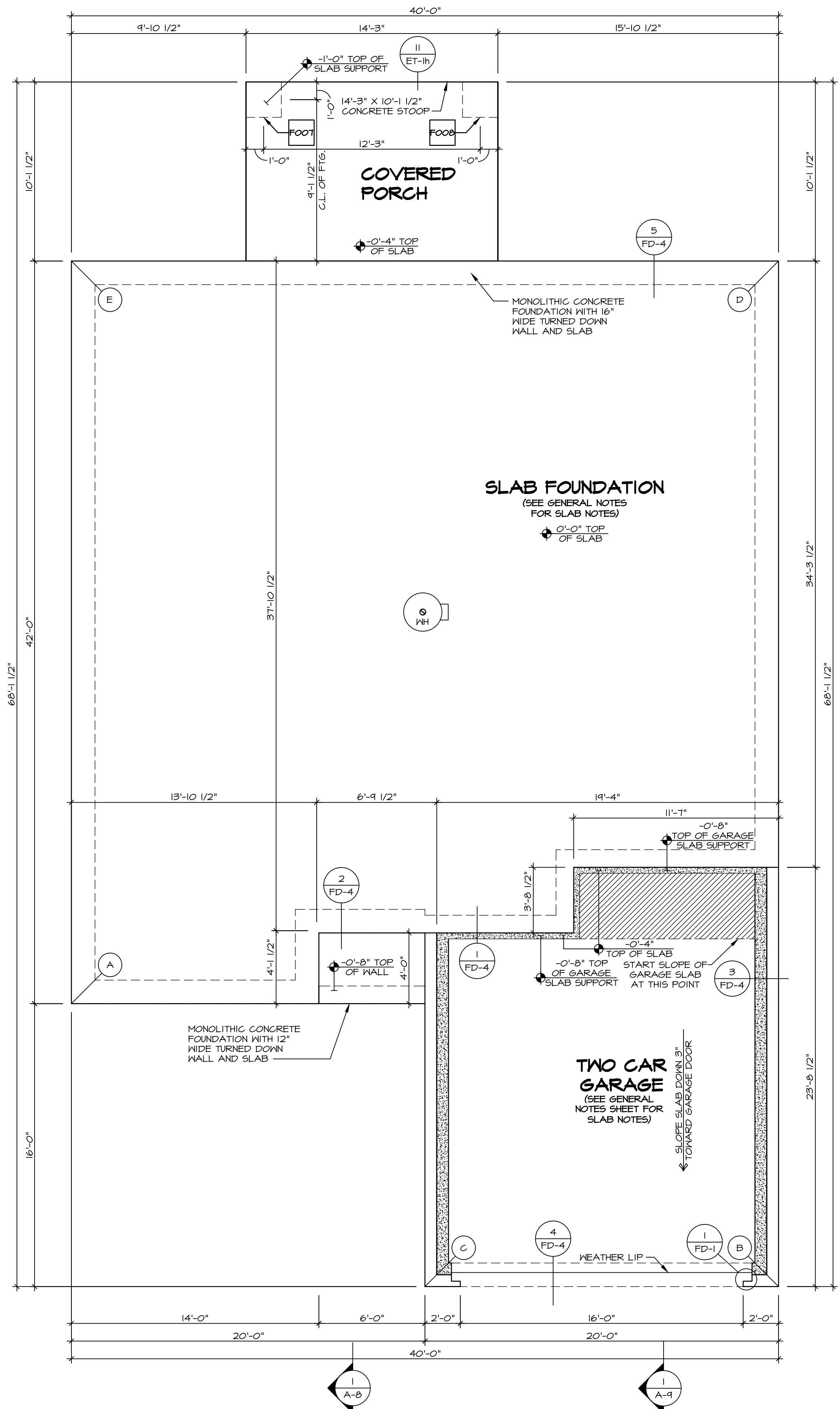
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PAD FOOTING SCHEDULE					
IDENTIFIER	LENGTH	WIDTH	HEIGHT	ENG. NUM.	REMARKS
FOOT	2'-0"	2'-0"	1'-0"	S0001	
FOOB	2'-0"	2'-0"	1'-0"	S0001	

FOUNDATION DIAGONALS			
A		B	
A	0"	A	43'-1"
B	43'-1"	B	0"
C	25'-1 3/8"	C	20'-0"
D	58'-0"	D	58'-0"
E	42'-0"	E	70'-5 7/16"

- FOUNDATION NOTES - SLAB**
- SEE STANDARD DETAIL CATEGORY "FD" SHEET(S).
 - CONCRETE SLAB ON VAPOR BARRIER OVER SUB-BASE (SEE SPEC SHEET FOR SLAB NOTES).
 - FOUNDATION UNDER GARAGE:
 - UNEXCAVATED WITH CONCRETE SLAB ON VAPOR BARRIER OVER SUB-BASE (SEE SPEC SHEET FOR SLAB NOTES) OR
 - STRUCTURAL CONCRETE SLAB ON VAPOR BARRIER OVER SUB-BASE (SEE SPEC SHEET FOR SLAB NOTES).
 - SEE FOUNDATION HOLD DOWN SHEET FOR CONNECTION INFORMATION.
 - SLAB LEDGE LOCATIONS VARY W/ GRADE BEAM(S) ORIENTATION. SEE 6B-1 FOR DETAILS.
 - THE DIRECTION OF THE ARROW IS THE DIRECTION OF REBAR, AS REQUIRED.
 - ALL FOOTINGS ARE PLAIN, NON-REINFORCED CONCRETE UNLESS NOTES OTHERWISE.
 - SEE MS- DETAILS FOR FOOTER SLEEVE INFORMATION.
 - THICKENED SLAB DEPTHS MEASURE FROM TOP OF SLAB. PAD FOOTING DEPTHS MEASURE 4" BELOW TOP OF SLAB.

- LEGEND**
- BEARING WALL
 - NON BEARING WALL
 - INDICATES BEARING FROM POINT-LOAD ABOVE
 - JACKS
 - BEAM/HEADER
 - FOOTING/THICKENED SLAB
 - STEEL COLUMN
 - TRUSS TIE DOWN
 - PORTAL FRAME
 - JOIST/TRUSS
 - LVL
 - ENGINEERING PAGE NUMBER
- SEE FA DETAILS FOR FIRE ASSEMBLIES
-SEE FC DETAILS FOR FRAMING CONNECTORS AND MATERIAL USAGE



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

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DIV-COMM-LOT-UNIT
COM-LOT
STREET ADDRESS
CITY
STATE
ZIP

01/24/2025

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NORTH CAROLINA ENGINEER
EDWARD BERTS
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Frederick, MD 21703
5285 Westchase

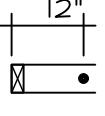

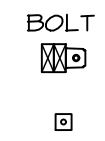
SET NO. 60M00
VERSION 01
RELEASE NO. ----
DRAWN BY HNP
DATE: 02/20/20
OPTION FSA

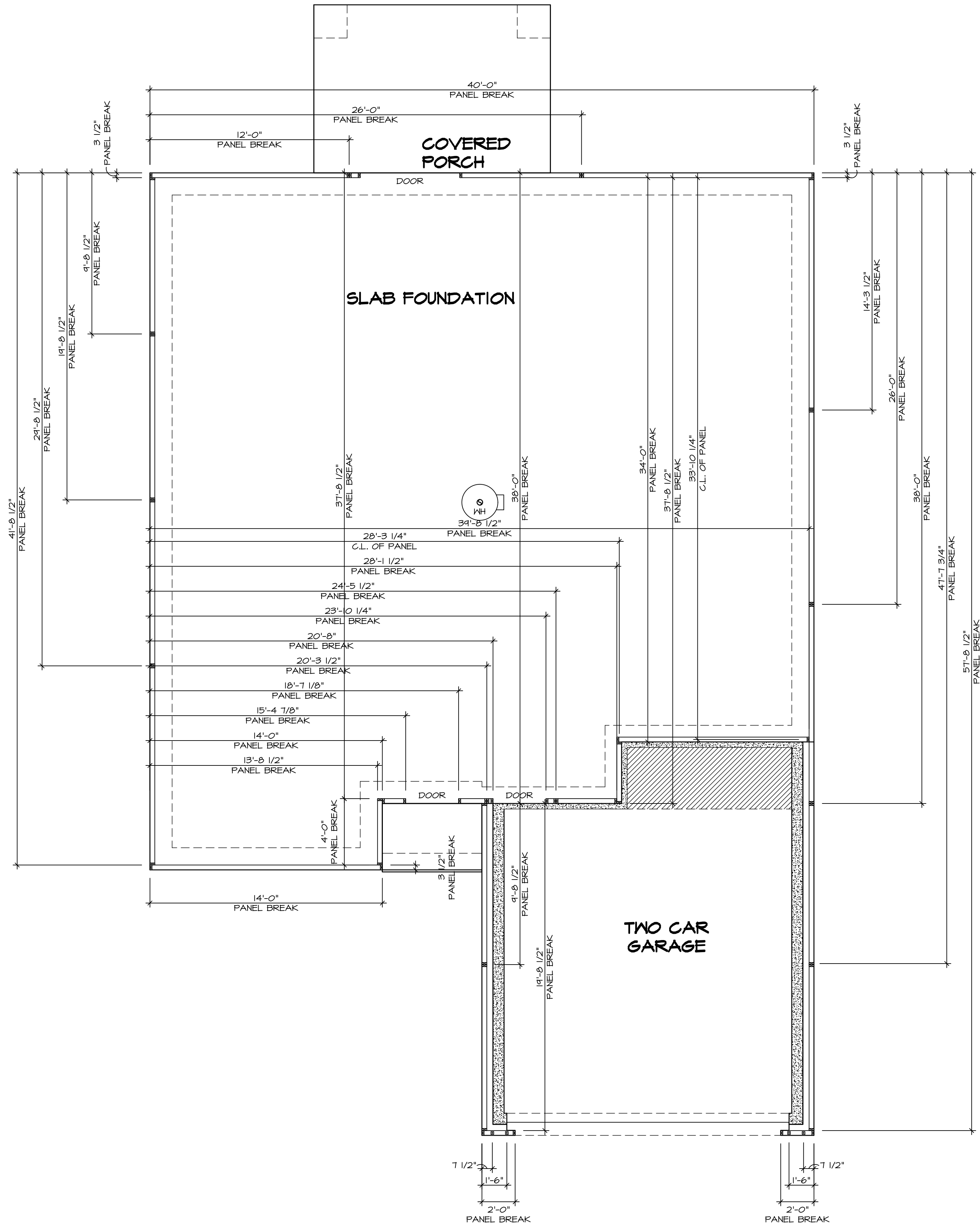
SHEET NO. **NC-3**

MODEL **GRAND CAYMAN**
DRAWING TITLE **FOUNDATION**
OPTION DESCRIPTION **SLAB FOUNDATION**

7

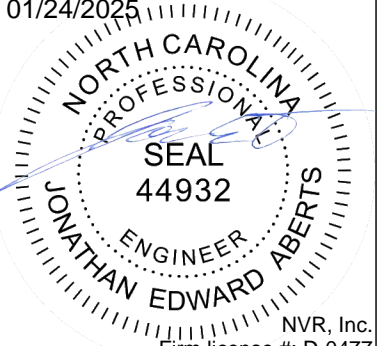
As directed by the North Carolina Board of Architecture and Registered Interior Designers, architectural seals are not required for these plans and specifications.

HOLD DOWN NOTES	
REFER TO DETAIL (1/2/1) FOR HOLD DOWN OFFSET DIMENSIONS. REFER TO DETAIL (12/2/1) FOR HOLD DOWNS ON CMU BLOCK.	
12" 	1. ALL PANELS GREATER THAN 24" SHALL HAVE AN ANCHOR WITHIN 12" OF THE PANEL BREAKS / ENDS. (SEE DETAIL SHEET FC-1 FOR MORE INFORMATION ON ANCHOR DETAILS)
STRAP 	1. STRAP. a. ON FOUNDATION USE (5THD14) b. ON FLOOR SYSTEM USE (5THD14R.L.) 2. ALL OTHER HOLD DOWN SEE DETAIL WB-1 FOR MORE INFORMATION. 3. STRAP LOCATION ON PLANS SHOWN BY DASHED DIMENSION TO CENTER OF STUDS
BOLT 	1. THREADED ROD 2. ALL OTHER HOLD DOWN SEE DETAIL WB-1 FOR MORE INFORMATION. 3. BOLT LOCATION ON PLANS SHOWN BY SOLID DIMENSION TO CENTER OF BOLT
OR	

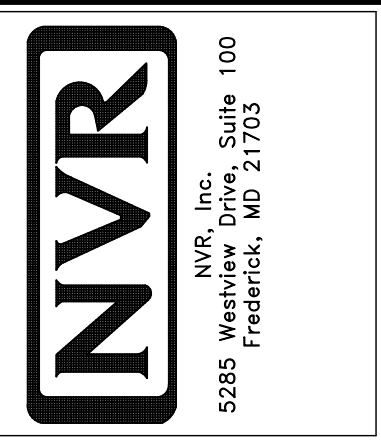


1 FOUNDATION HOLD DOWN DETAIL
NC-4 SCALE: 1/4" = 1'-0"

DIV-COMM-LOT-UNIT	
COMM-LOT	APT. NO.
STREET ADDRESS	
CITY	STATE
ZIP	



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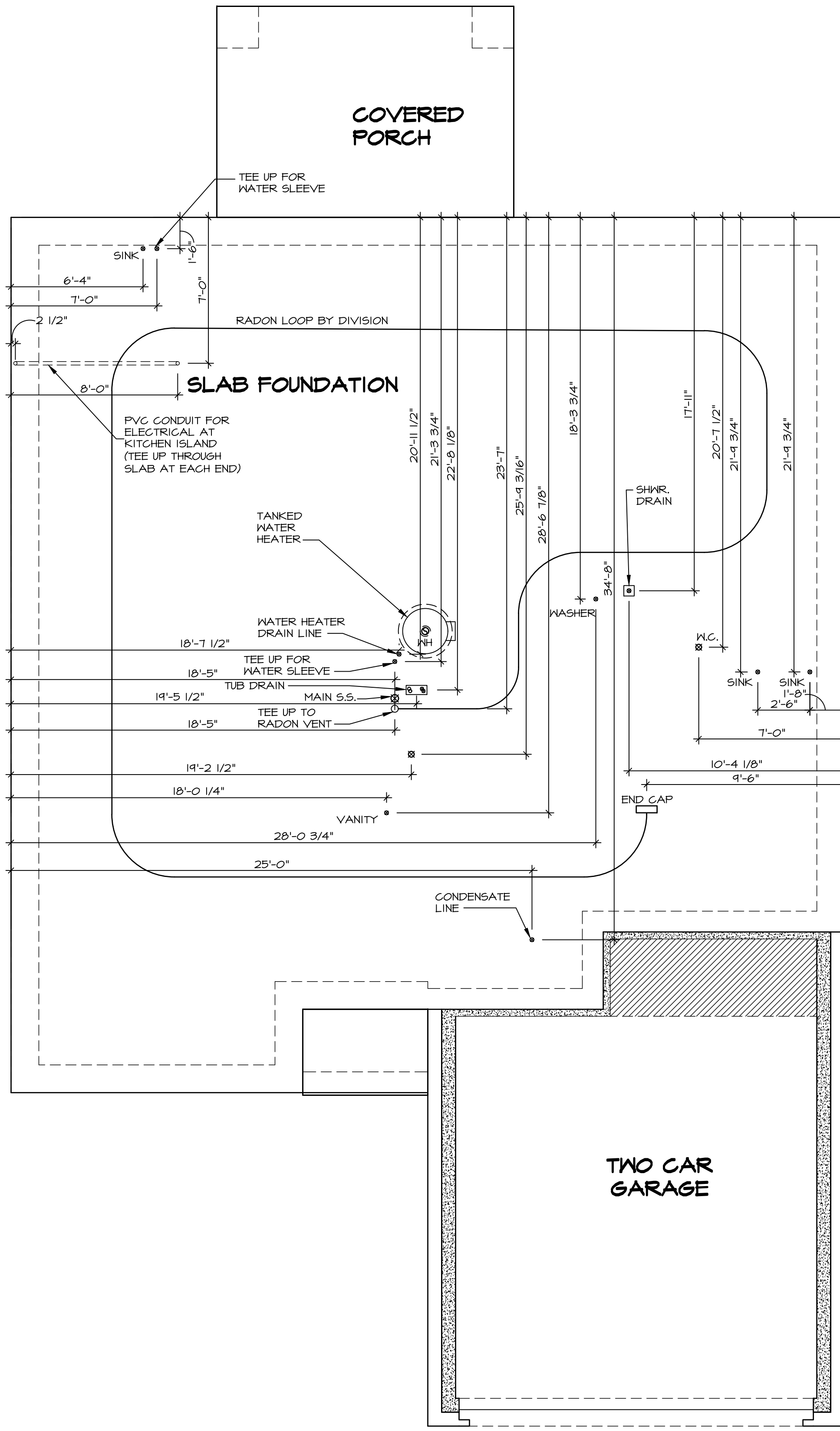


SET NO. 60M00	VERSION 01
RELEASE NO. ----	DRAWN BY CEL
DATE:	OPTION

SHEET NO. NC-4	MODEL GRAND CAYMAN
DRAWING TITLE FOUNDATION HOLD DOWN	OPTION DESCRIPTION
8	

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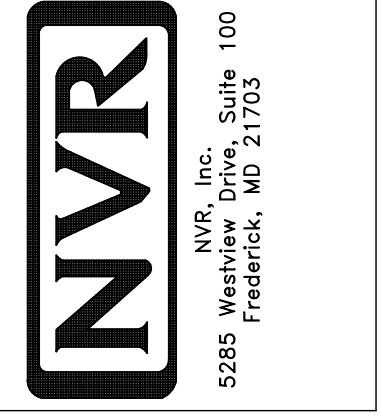
PLUMBING NOTES:
RADON REMEDIATION
RADON LOOP:
 - (4") PERFORATED HDPE "LOOP"
 - MUST BE PLACED IN STONE BED SLIGHTLY HIGHER THAN ANY INTERIOR DRAINTILE
 - LOOP TO BE SEPARATE FROM ANY DRAINTILE ELEMENTS
 - TO BE CORRUGATED HDPE PIPE
 - SCREENS TO BE INSTALLED THROUGH LOOP AT TEE UP INTO STACK
STACK REQUIREMENTS:
 - 3" PVC STACK (4" IF BASEMENT IS GREATER THAN 2200 SQFT.)
 - NO PART OF STACK IS TO BE HORIZONTAL (45° ELBOWS PERMITTED AS REQUIRED)
 - PIPE TO BE PHYSICALLY LABELED IN THE FIELD AS "RADON VENT" OR OTHER JURISDICTIONALLY REQUIRED LANGUAGE (ON EVERY LEVEL OF HOUSE)
 - ROOF TERMINATION TO BE IN TOP 1/3 OF ROOF
 - SCREEN OR VENT CAP INSTALLED TO KEEP PESTS OUT OF RADON VENT AT ROOF TERMINATION.



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

DIV-COMM-LOT-UNIT
 COMM-LOT
 STREET ADDRESS
 CITY STATE ZIP

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SET NO. 6CM00
 VERSION 01
 RELEASE NO. ---
 DRAWN BY HNP
 DATE: 02/20/20
 OPTION

SHEET NO. **NC-5**
 MODEL **GRAND CAYMAN**
 DRAWING TITLE **PLUMBING**
 OPTION DESCRIPTION

FIRST FLOOR JACK SCHEDULE			
IDENTIFIER	DESCRIPTION	ENG. NUM.	REMARKS
J106	JACK - (2) 2X4 SFF STUD GRADE	1006	
J107	JACK - (2) 2X4 SFF STUD GRADE	1006	
J108	JACK - (3) 2X4 SFF STUD GRADE	1004	
J109	JACK - (3) 2X4 SFF STUD GRADE	1004	
J110	JACK - (3) 2X4 SFF STUD GRADE	1012	
J111	JACK - (3) 2X4 SFF STUD GRADE	1012	

FLOOR PLAN NOTES:

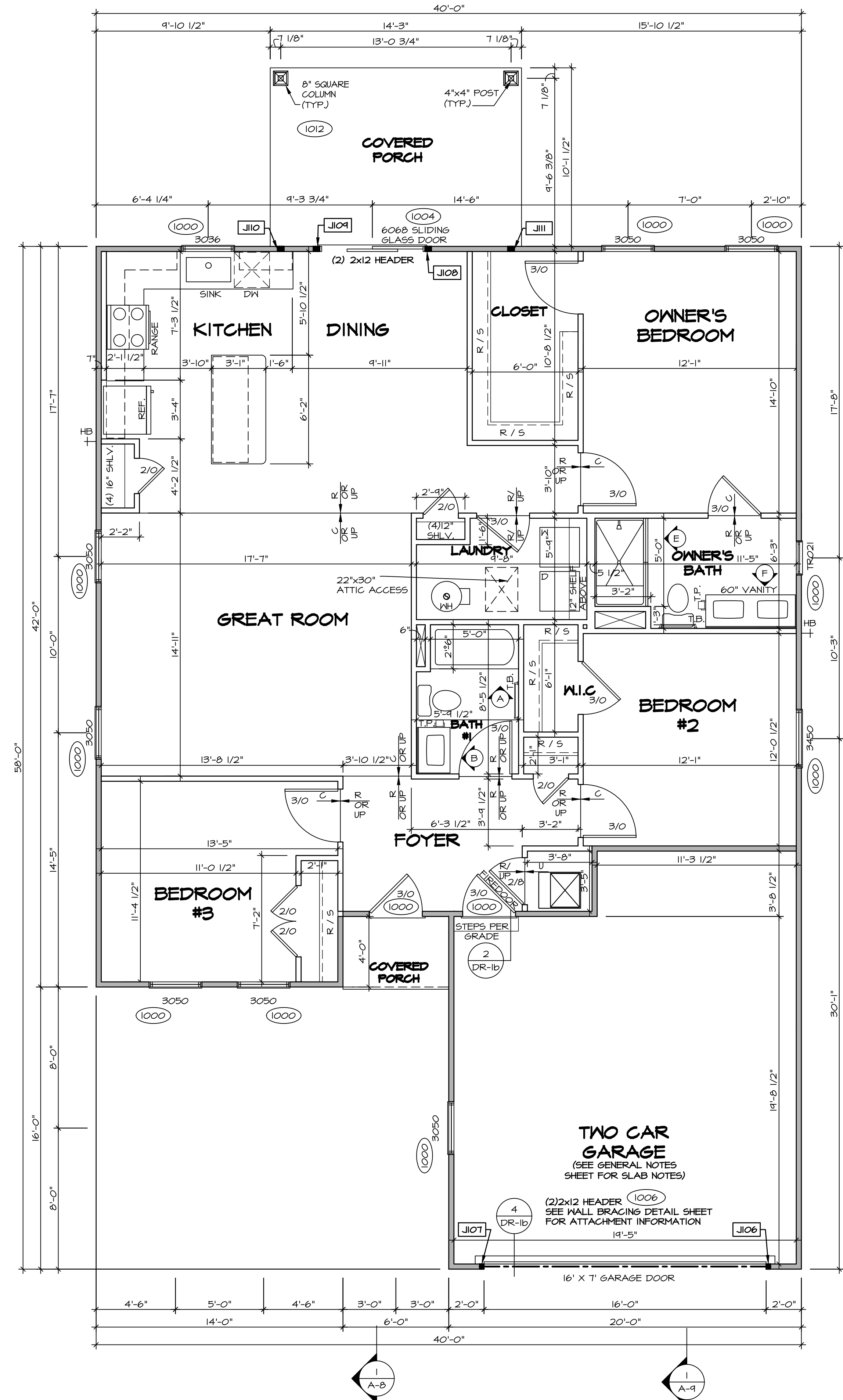
- ALL HEADERS ARE (2) 2x6 w/ 2x4 WALLS OR (3) 2x6 w/ 2x6 WALLS, UNLESS OTHERWISE NOTED.
- ALL HEADERS TO HAVE (1) 2x4 OR 2x6 JACK AND KING STUD EACH END, UNLESS OTHERWISE NOTED. MULTI-OPENING HEADERS TO HAVE (2) JACKS AT INTERMEDIATE BEARING, UNLESS OTHERWISE NOTED. NO ADDITIONAL FLOOR SYSTEM BLOCKING OR CONTINUOUS LOAD PATH JACKS ARE REQUIRED UNLESS OTHERWISE NOTED.
- ALL EXTERIOR WALLS TO BE 4" OR 6" AND ALL INTERIOR WALLS TO BE 3 1/2", UNLESS OTHERWISE NOTED.
- HATCHED AREAS INDICATE DROPPED CEILINGS. ALL DROPPED CEILINGS ARE 12" UNLESS OTHERWISE NOTED. SEE ARCHITECTURAL DETAIL 8/11-1B FOR 3/4" FIRE STOPPING AT BULKHEAD / CEILING PANELS.
- SEE "BRACED WALL PANEL DETAIL SHEET" FOR SPECIAL WALL FRAMING LOCATIONS AND HEADER SIZES, IF APPLICABLE.
- SEE STANDARD DETAIL CATEGORY "IT" SHEET(S) FOR INTERIOR TRIM DETAILS.
- SEE ARCHITECTURAL DETAIL SHEET "AD" FOR HOUSE SPECIFIC INTERIOR TRIM OPTION TABLE.
- ALL HEADERS IN NON-BEARING WALLS SHALL BE A SINGLE FLAT 2X4 OR 2X6 ATTACHED TO CRIPPLES ABOVE, UNLESS OTHERWISE NOTED.
- TANKED WATER HEATER SHOWN AS BASE CONDITION, OPTIONAL TANKLESS WATER HEATER IS AVAILABLE IN LIEU OF TANKED WATER HEATER.
- INTERIOR HEADER HEIGHT FOR 8" CEILING WILL BE 6'-11", 9" CEILING WILL BE 7'-11", 10" CEILING WILL BE 8'-3", UNLESS OTHERWISE NOTED.
- BASEMENT FINISH DIMENSIONS ASSUME A 1/2" GAP BETWEEN FRAME WALL AND CONCRETE WALL.
- ALL INTERIOR BEARING WALLS SHALL HAVE GYPSUM APPLIED TO AT LEAST ONE SIDE OR HAVE MID-HEIGHT BLOCKING INSTALLED.
- NON-BEARING WALLS OVER CONCRETE TO BE HELD 1/2" SHORT OF FRAMING ABOVE.

GYPSUM NOTES:

AT GARAGE:
GYPSUM BOARD AT COMMON WALLS, CEILINGS, BEAM WRAPS AND SUPPORTS PER STANDARD DETAIL FA-1(b) FIRE ASSEMBLIES OR AS REQUIRED BY LOCAL CODE.

AT STAIRS:
1/2" GYPSUM BOARD AT UNDERSIDE OF STAIRS AND WALLS IN CLOSET

LEGEND	
	BEARING WALL
	NON BEARING WALL
	INDICATES BEARING FROM POINT-LOAD ABOVE
	JACKS
	BEAM/HEADER
	FOOTING/THICKENED SLAB
	STEEL COLUMN
	TRUSS TIE DOWN
	PORTAL FRAME
	JOIST/TRUSS
	LVL
	ENGINEERING PAGE NUMBER
-SEE FA DETAILS FOR FIRE ASSEMBLIES	
-SEE FC DETAILS FOR FRAMING CONNECTORS AND MATERIAL USAGE	



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

As directed by the North Carolina Board of Architecture and Registered Interior Designers, architectural seals are not required for these plans and specifications.

DIV-COMM-LOT-UNIT	---
COMM-LOT	---
STREET ADDRESS	---
CITY	---
STATE	---
ZIP	---

01/24/2025

NORTH CAROLINA PROFESSIONAL SEAL 44932

JOYHANN EDWARD BERTS
ENGINEER

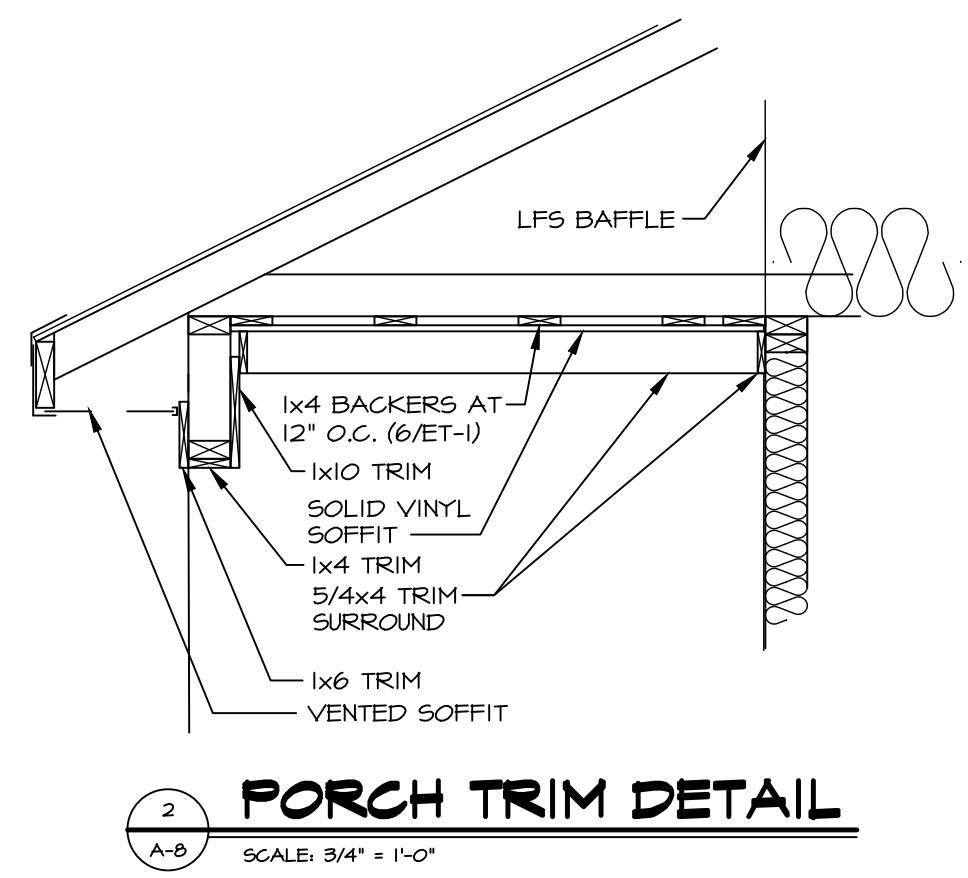
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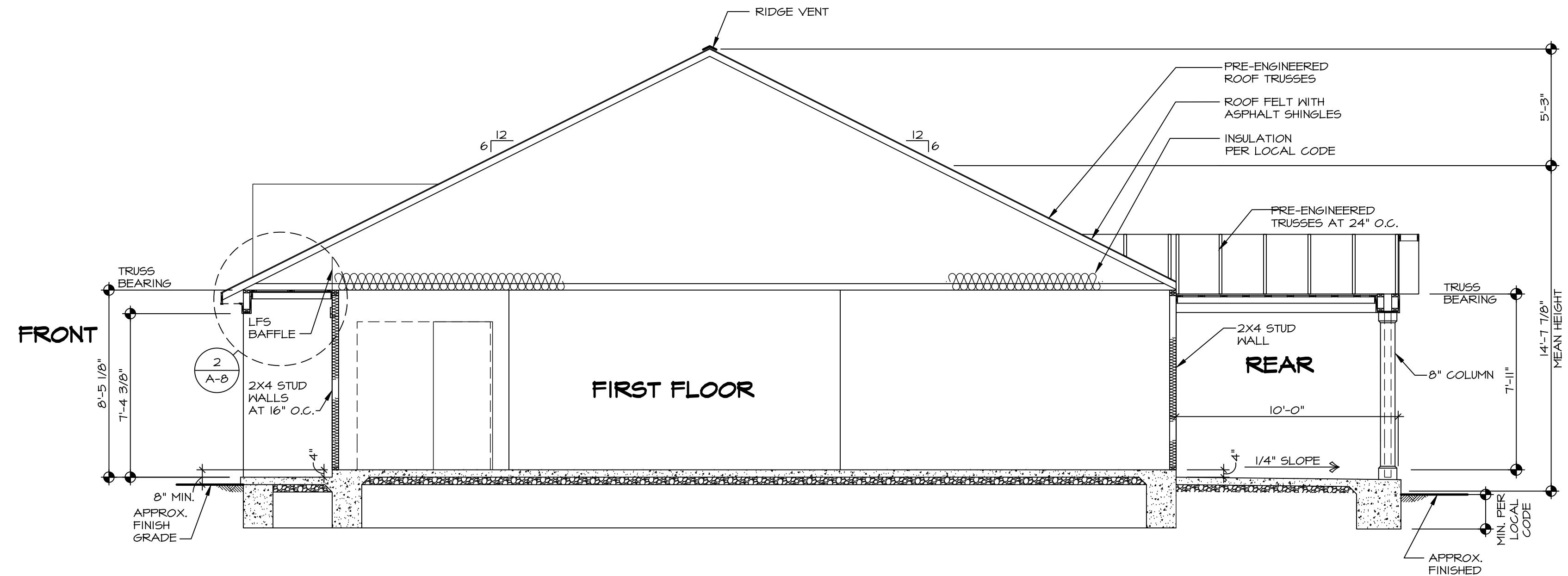
NVR

NVR, Inc., Suite 100
5285 Westwick, MD 21703

SHEET NO.	NC-7
MODEL	GRAND CAYMAN
DRAWING TITLE	FIRST FLOOR PLAN
OPTION DESCRIPTION	
SET NO.	60M00
VERSION	01
RELEASE NO.	----
DRAWN BY	HNT
DATE	02/21/20
OPTION	



2 PORCH TRIM DETAIL
SCALE: 3/4" = 1'-0"

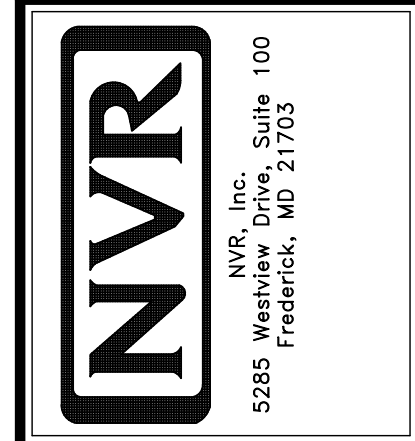


1 BUILDING SECTION - FOYER
SCALE: 1/4" = 1'-0"

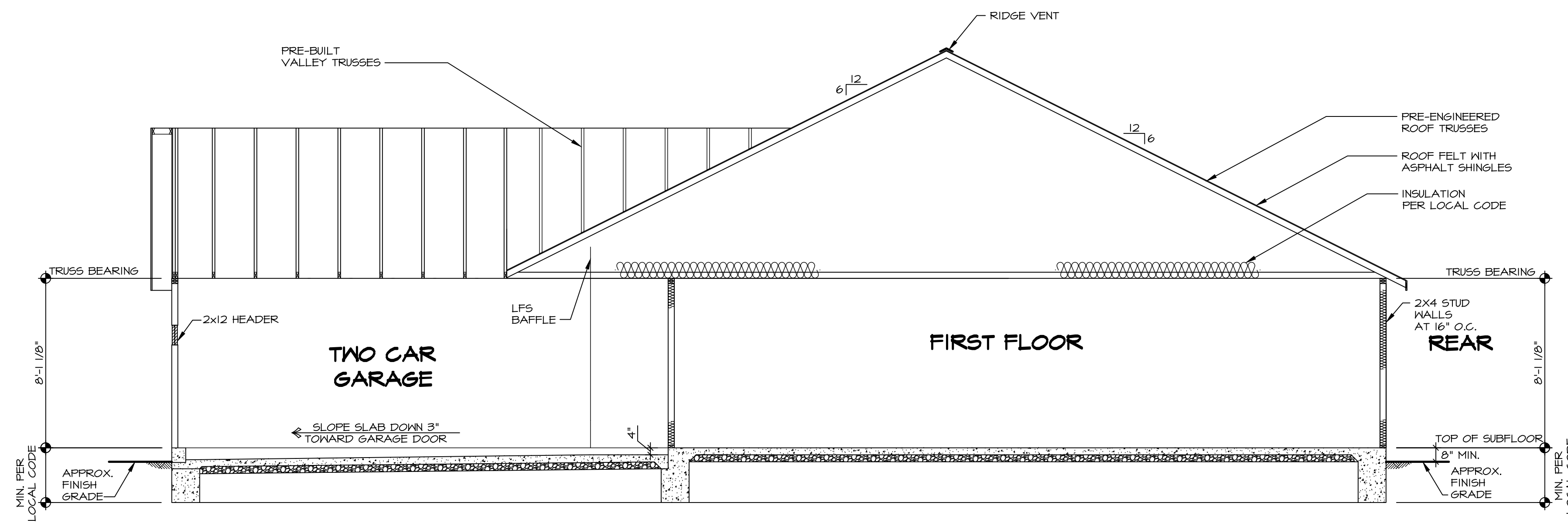
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DIV-COMM-LOT-UNIT	
COM-LOT	-----
STREET ADDRESS	-----
CITY	-----
STATE	-----
ZIP	-----

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SHEET NO.	MODEL	SET NO.	VERSION	RELEASE NO.	DRAWN BY	DATE	OPTION
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	DRAWING TITLE						
	BUILDING SECTION						
	OPTION DESCRIPTION						
12							

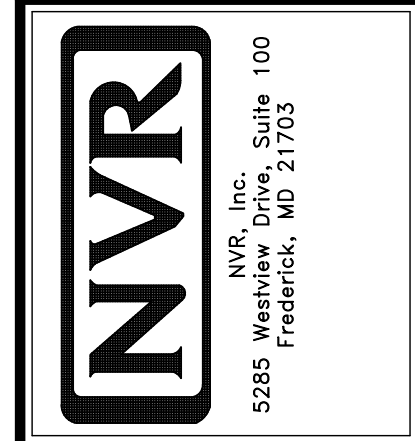


BUILDING SECTION - GARAGE
 SCALE: 1/4" = 1'-0"

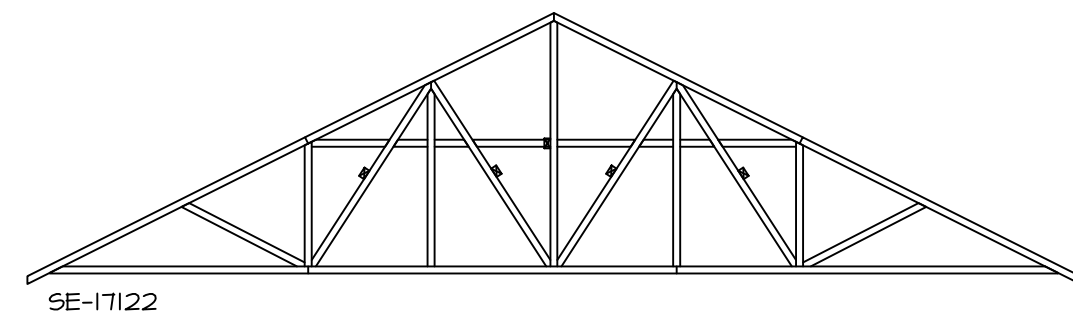
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 COMM-LOT -----
 STREET ADDRESS -----
 CITY ----- STATE ----- ZIP -----
 APT. NO. -----

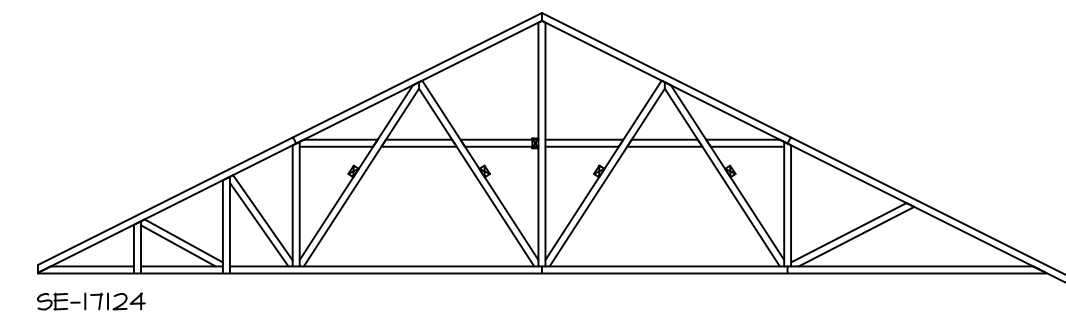
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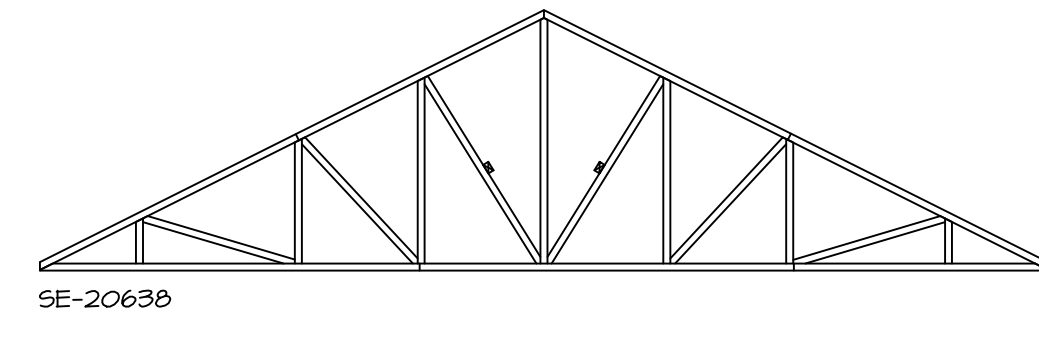
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	DRAWING TITLE BUILDING SECTION - GARAGE	RELEASE NO. ----	DATE: 02/20/20
	OPTION DESCRIPTION	OPTION	



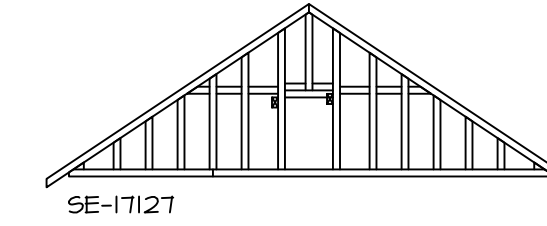
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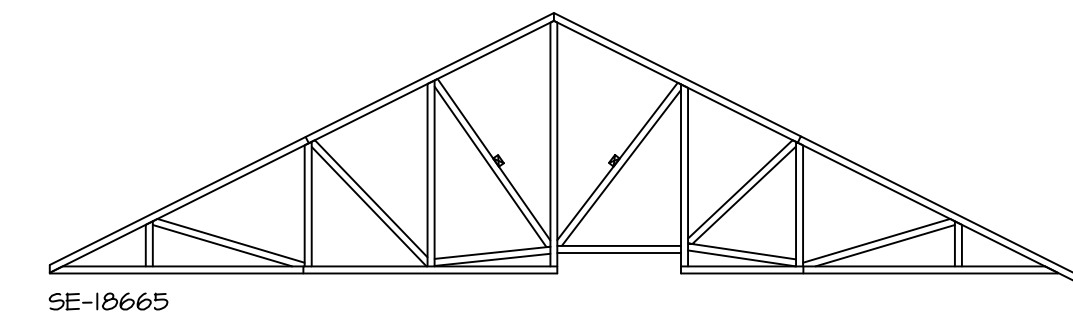
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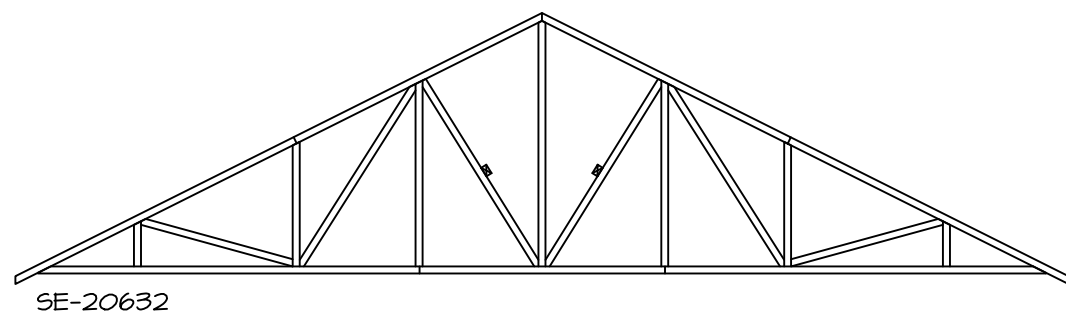
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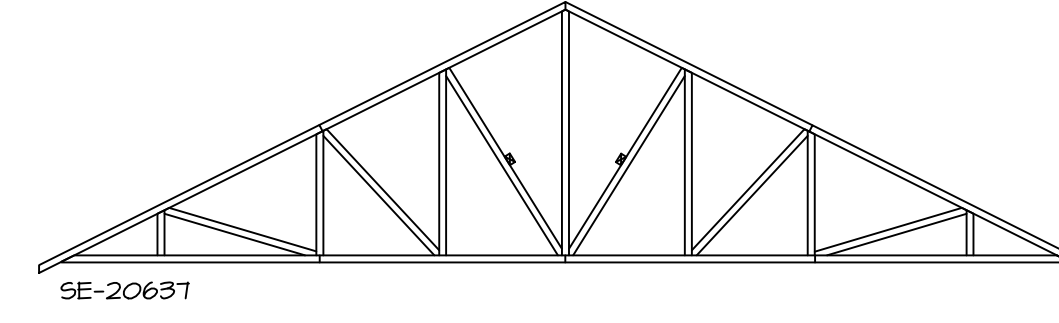
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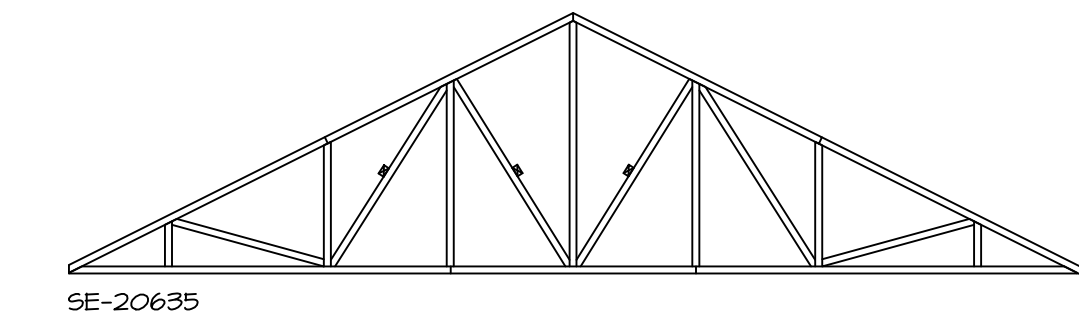
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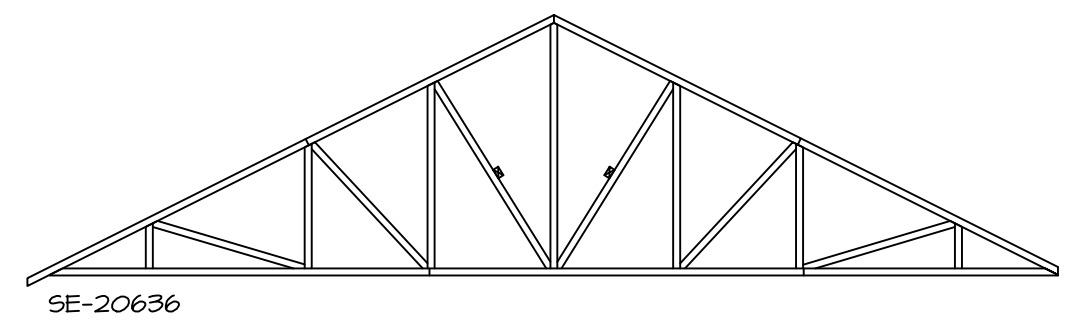
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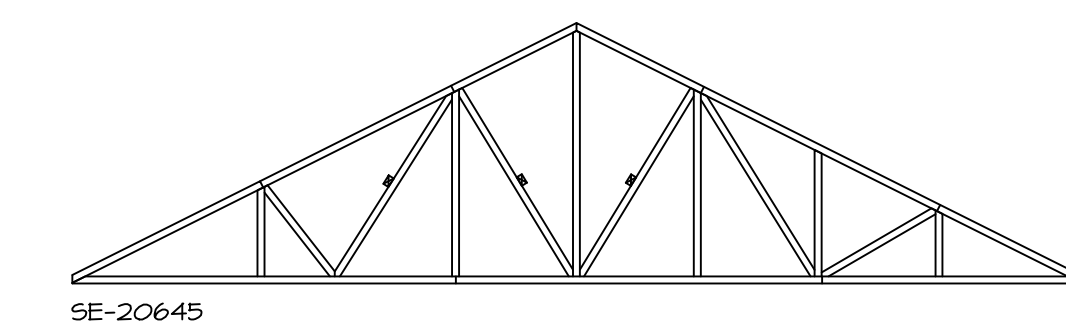
SE-20637



SE-20635



SE-20636



SE-20645

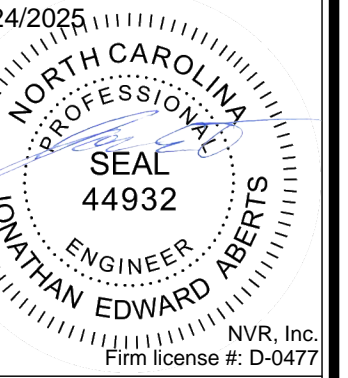
TRUSS BRACING DETAILS
SCALE: 1/4" = 1'-0"

TRUSS BRACING NOTES:

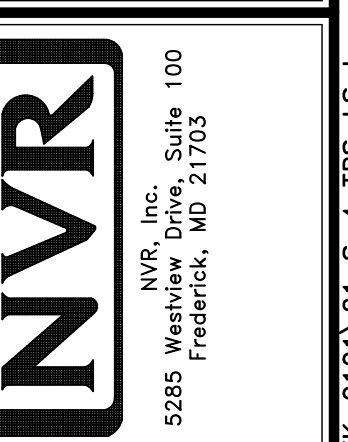
- IF TRUSS DOES NOT APPEAR ON THIS TRUSS BRACING SHEET, NO ADDITIONAL LATERAL BRACING IS REQUIRED.
- 2X4 SPP#2 LATERAL BRACES SHALL BE NAILED TO MINIMUM (3) TRUSS MEMBERS WITH MINIMUM (2) 10D NAILS. PROVISIONS MUST BE MADE AT ENDS OR SPECIFIED INTERVALS TO RESTRAIN OR ANCHOR LATERAL BRACING.
- WEB "T" BRACE, DETAIL 9(RF-1c), IS REQUIRED WHERE LATERAL BRACING IS NOT CONTINUOUS ACROSS THREE (3) OR MORE TRUSSES AND MAY BE USED IN LIEU OF 2X4 LATERAL BRACING.
- DIAGONAL BRACING REQUIRED WHEN LATERAL BRACING IS REQUIRED (4(RF-1c)).
- STUDDED GABLE BRACING DETAIL 1(RF-1c) TO BE UTILIZED FOR TRUSSES 6'-4" IN HEIGHT OR GREATER.
- PARTIALLY SHEATHED GABLES, SEE 5(RF-1c) FOR "L" BRACING WHEN REQUIRED.
- LATERAL BRACING CAN BE APPLIED TO EITHER SIDE OF THE WEB MEMBER IDENTIFIED IN THE DRAWING.
- SHEATHING (OSB OR GYPSUM) REPLACES LATERAL AND DIAGONAL TRUSS BRACING.

As directed by the North Carolina Board of Architecture and Registered Interior Designers, architectural seals are not required for these plans and specifications.

DIV-COMM-LOT-UNIT
COM-LOT
STREET ADDRESS
CITY STATE ZIP
APT. NO.



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SET NO. 60M00
VERSION 01
RELEASE NO. ----
DRAWN BY BN
DATE: 2/02/20
OPTION

SHEET NO. **S-4**
MODEL **GRAND CAYMAN**
DRAWING TITLE **TRUSS BRACING DETAILS**
OPTION DESCRIPTION
21

As directed by the North Carolina Board of Architecture and Registered Interior Designers, architectural seals are not required for these plans and specifications.

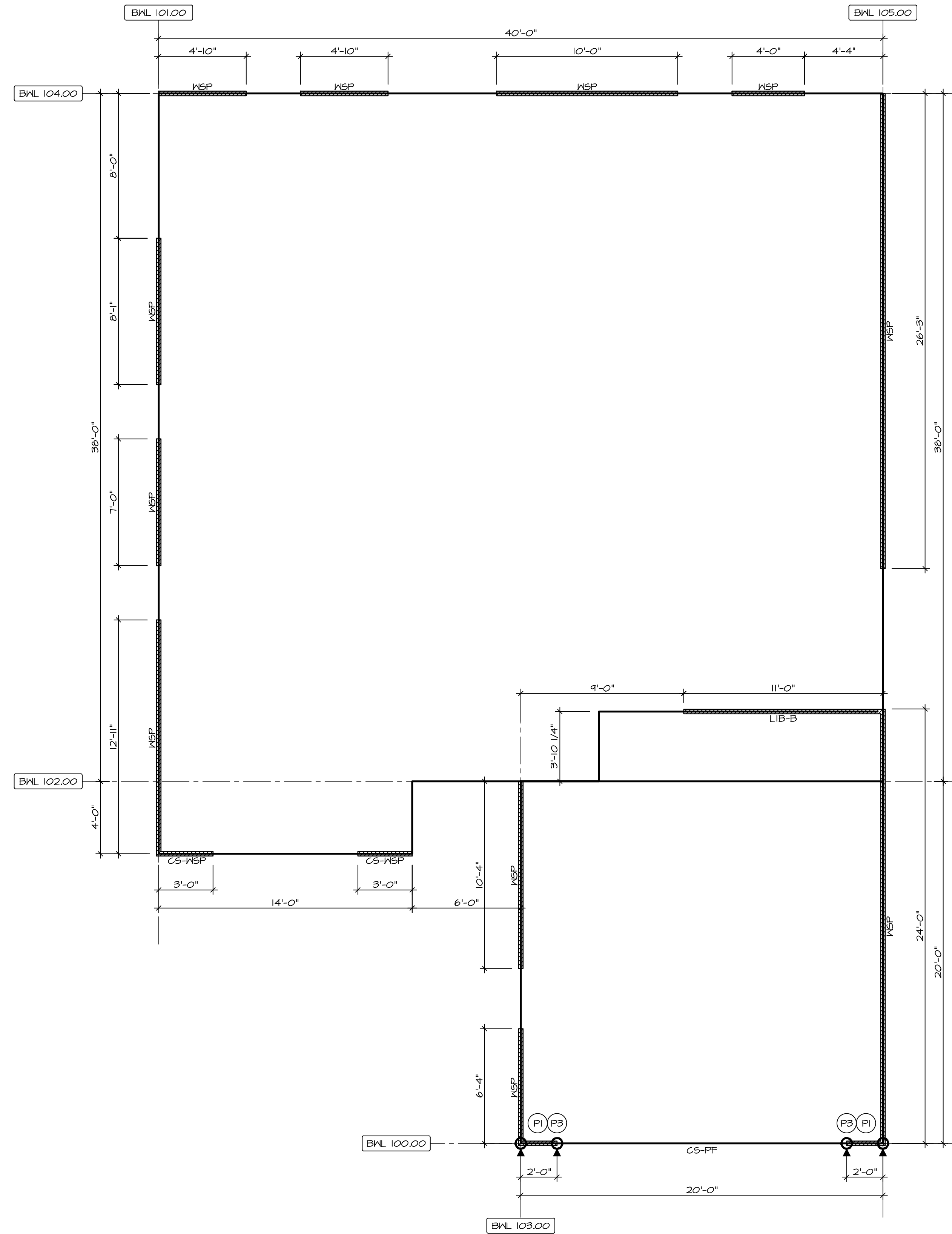
BRACED WALL LINE SCHEDULE				
WIND SPEED (ULT)	IDENTIFIER	REQUIRED (FT)	ACTUAL (FT)	METHOD
130 MPH	BWL 100.00	5.25'	6.00'	CONTINUOUS (WITH GNB)
130 MPH	BWL 101.00	8.63'	27.99'	WSP (WITH GNB)
130 MPH	BWL 102.00	15.84'	17.00'	LIB
130 MPH	BWL 103.00	5.05'	16.66'	WSP (WITH GNB)
130 MPH	BWL 104.00	10.72'	23.66'	WSP (WITH GNB)
130 MPH	BWL 105.00	4.09'	50.25'	WSP (WITH GNB)

BRACING LEGEND	
BWL XXX.XX	BRACED WALL LINE I.D.
---	BRACED WALL LINE
---	HOUSE WALL
▨	BRACED WALL PANEL
WSP	WOOD STRUCTURAL PANEL
GB	GYPSUM BOARD (1) SIDED OR (2) SIDED
GB-BW	GYPSUM BOARD BLOCKED WALL CONSTRUCTION (1) SIDED OR (2) SIDED (SEE STANDARD DETAIL G/MB-2)
LIB	LET-IN BRACING (SEE STANDARD DETAIL F / WB-2)
CS-WSP	CONTINUOUS SHEATHING - WOOD STRUCTURAL PANEL
CS-PF	CONTINUOUS SHEATHING - PORTAL FRAME, SEE FLOOR PLANS FOR PORTAL FRAME HEADER INFORMATION (SEE STANDARD DETAIL A, C / WB-2)
CS-G	CONTINUOUS SHEATHING - WOOD STRUCTURAL PANEL ADJACENT TO GARAGE OPENINGS
⊙	HOLD-DOWN 1. SEE SHEET WB-2 "P."* 2. ARROW INDICATES LOCATION

NOTES:
HOUSE HAS BEEN ANALYZED UTILIZING A PRESCRIPTIVE METHOD IN COMPLIANCE WITH INTERNATIONAL RESIDENTIAL CODES (IRC) UNLESS OTHERWISE NOTED.

FASTENING SCHEDULE			
SHEATHING	FASTENER	SPACING	
		EDGES	FIELD
7/16" WOOD STRUCTURAL PANELS OR EQUIVALENT (W METHOD WSP, CS-WSP, CS-G)	8d COMMON NAILS ALTERNATIVE FASTENER 1-3/4" 16-GAUGE CORROSION RESISTANT STAPLES	6" O.C.	6" O.C.
1/2" GYPSUM WALLBOARD (W METHOD GB-1, GB-2)	1-1/4" LONS, 1/4" HEAD, 0.918" DIA. ANNULAR-RINGED NAILS CORROSION RESISTANT TYPE W 1-1/4" DRYWALL SCREWS	7" O.C.	7" O.C.
1/2" GYPSUM WALL BOARD BLOCKED AT THE EDGES (W METHOD GB-BW-1, GB-BW-2, ENG-BW)	BLOCKING REQUIRED AT ALL GYPSUM EDGES. USE CORROSION RESISTANT TYPE W 1-1/4" DRYWALL SCREWS	4" O.C.	12" O.C.

NOTES:
1. MINIMUM 7/16" CROWN WIDTH FOR STAPLES IN WOOD STRUCTURAL PANEL.
2. SPECIFIED GYPSUM FASTENING REQUIRED ONLY WHERE METHOD GB IS IDENTIFIED. SEE PHASE SPECS FOR TYPICAL GYPSUM FASTENER SPACING.
3. USE OF STAPLES IN WOOD STRUCTURAL PANEL AS FASTENING METHOD ON WALLS PER ENGINEERED ALTERNATIVE.
4. WALL PANELS NOT IDENTIFIED AS BRACED WALL PANELS SHALL BE FASTENED IN ACCORDANCE WITH THE WSP METHOD.



FIRST FLOOR BRACED WALL
SCALE: 1/4" = 1'-0"

DIV-COMM-LOT-UNIT
 COMM-LOT
 STREET ADDRESS
 CITY
 STATE
 ZIP
 APT. NO.

01/24/2025
 NORTH CAROLINA
 PROFESSIONAL
 SEAL
 44932
 EDWARD BERTS
 ENGINEER
 NVR, Inc.
 Firm license # D-0477

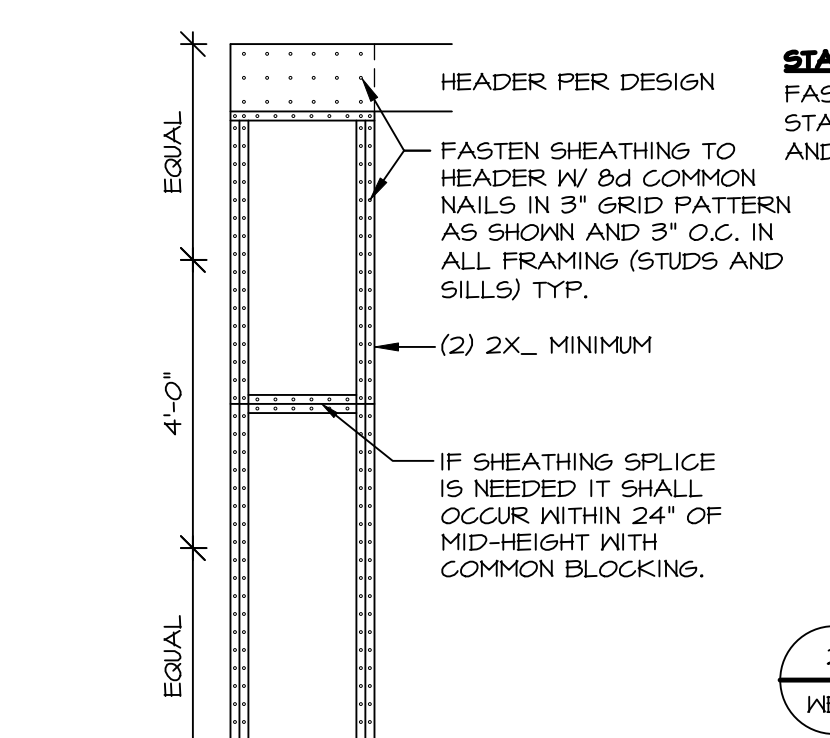
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 Frederick, MD 21703
 5085 Westrick Rd.

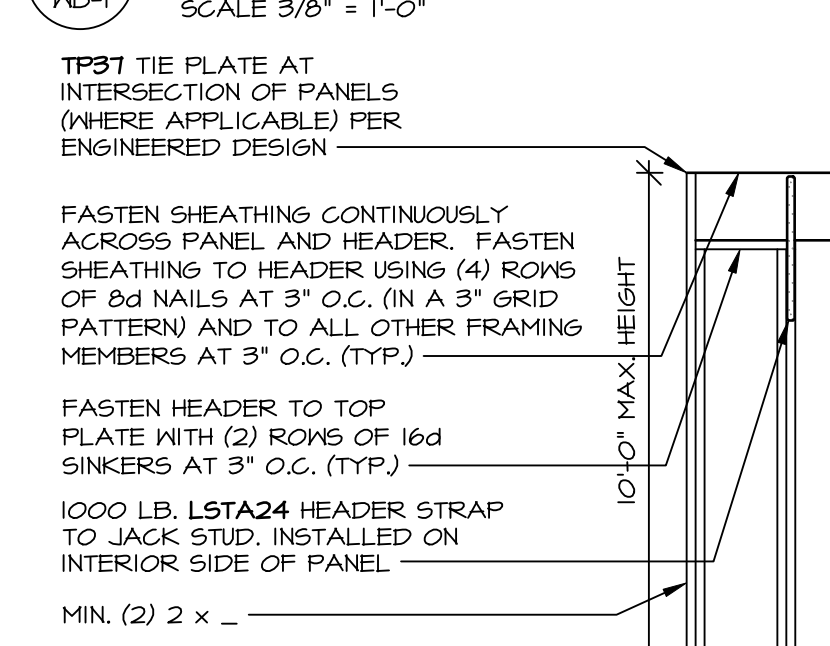
SET NO. 60M00
 VERSION 01
 RELEASE NO. ---
 DRAWN BY CEL
 DATE:
 OPTION

MODEL
GRAND CAYMAN
 DRAWING TITLE
 FIRST FLOOR BRACED WALL
 OPTION DESCRIPTION

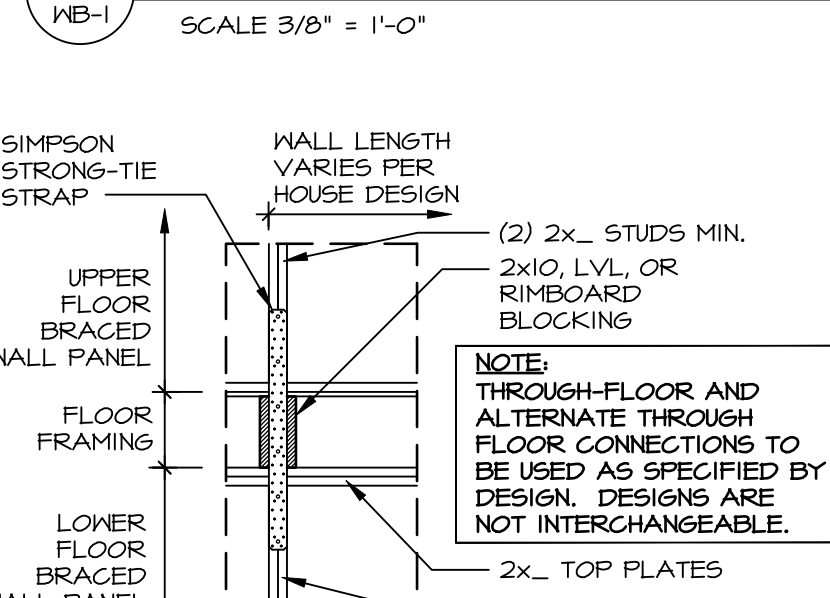
SHEET NO.
S-5
 22



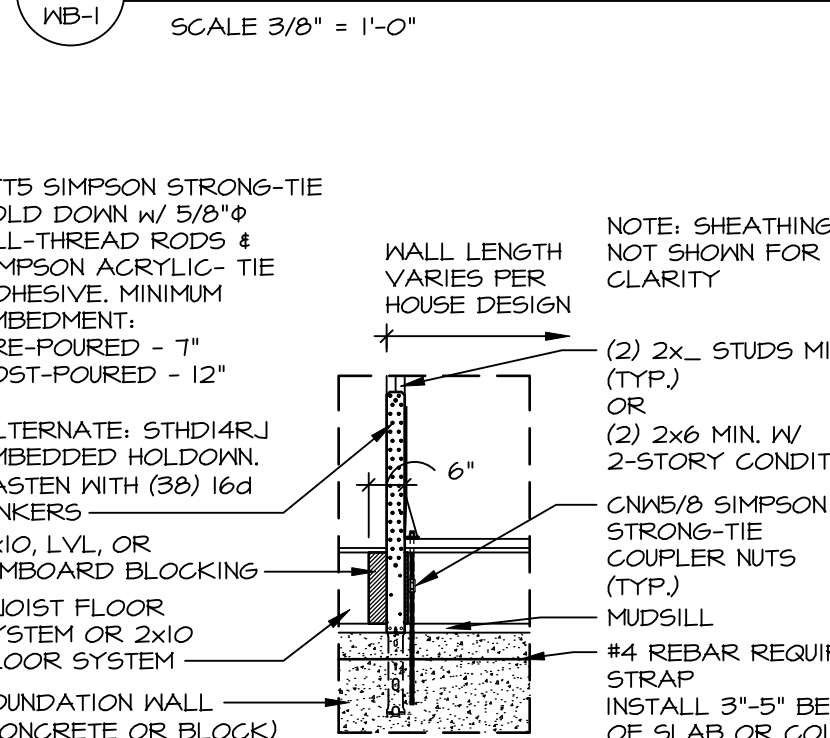
1 SHEATHING AT HEADER / PANEL CONNECTION
SCALE 3/8" = 1'-0"
WB-1



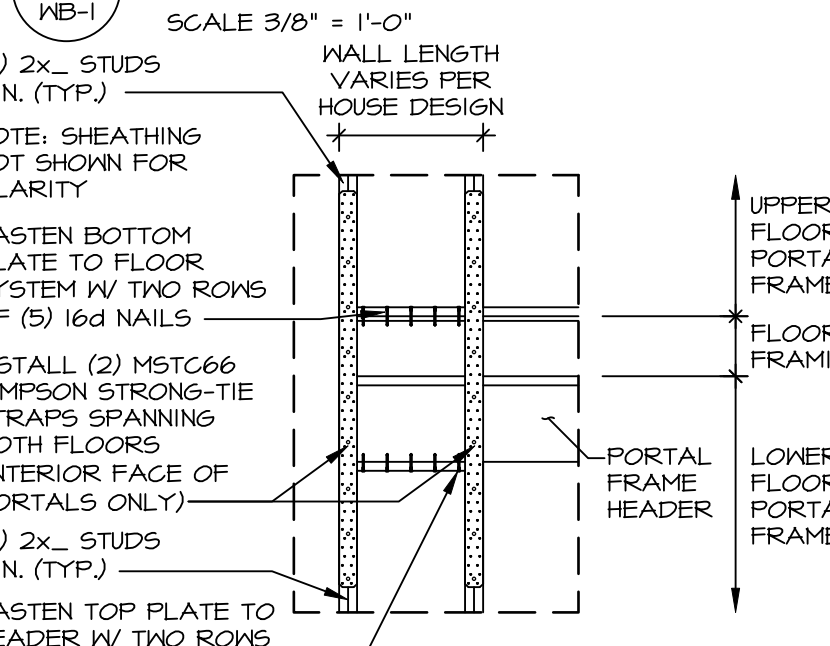
2 STACKED ENGINEERED PORTAL: HEADER / PANEL CONNECTION
SCALE 3/8" = 1'-0"
WB-1



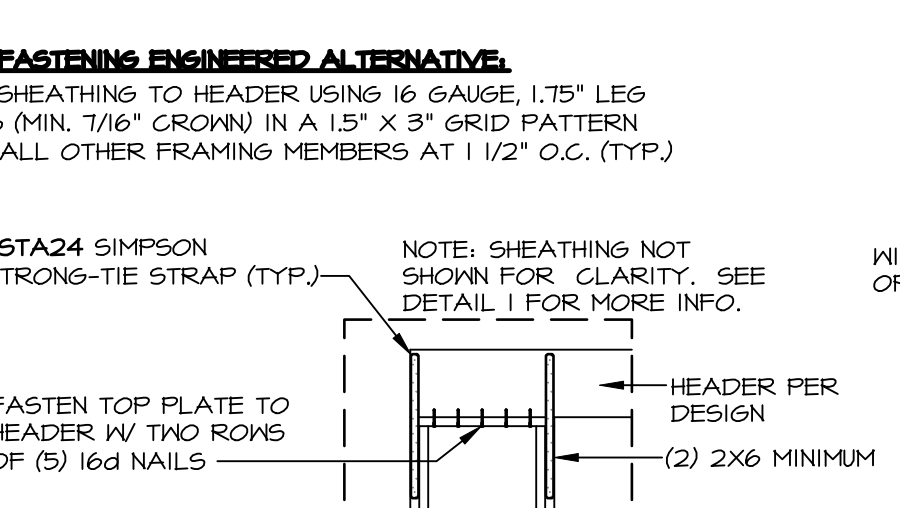
3 ENGINEERED PORTAL: TYP. HEADER / PANEL CONNECTION
SCALE 3/8" = 1'-0"
WB-1



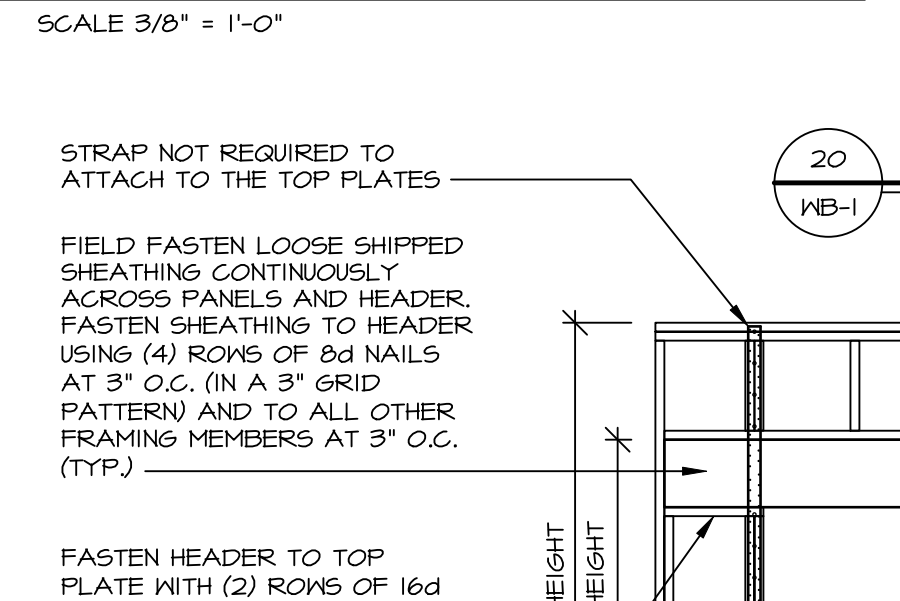
4 ENGINEERED PORTAL WITH PONY WALL
SCALE 3/8" = 1'-0"
WB-1



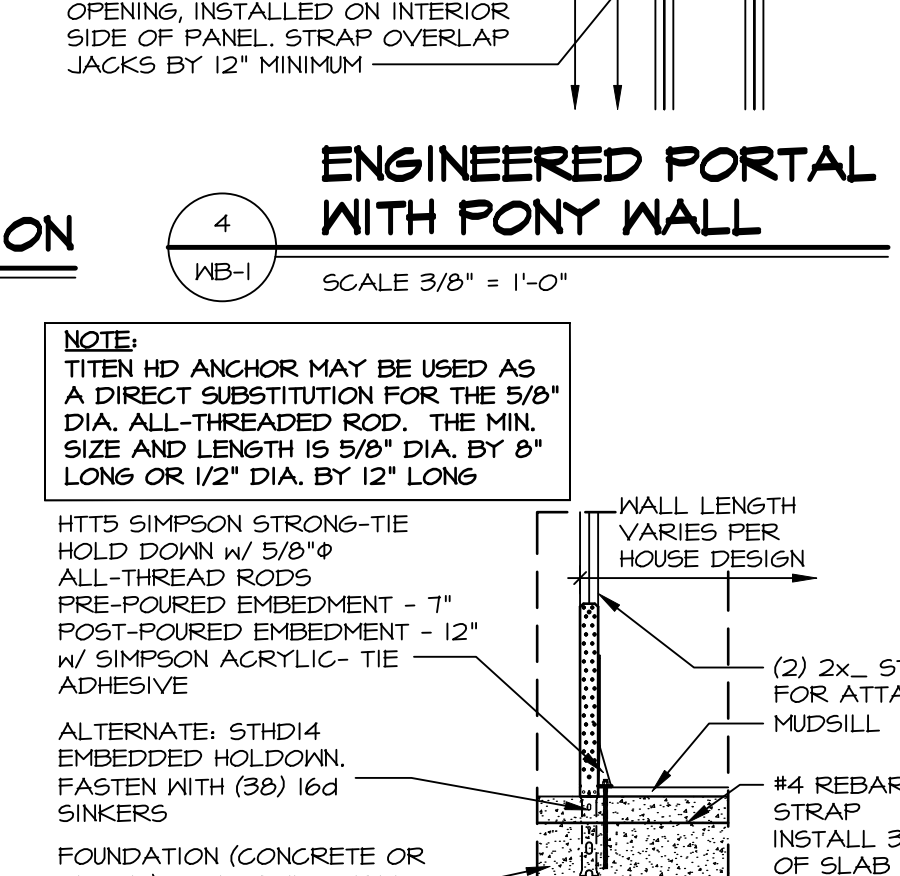
5 THROUGH-FLOOR CONNECTION
SCALE 3/8" = 1'-0"
WB-1



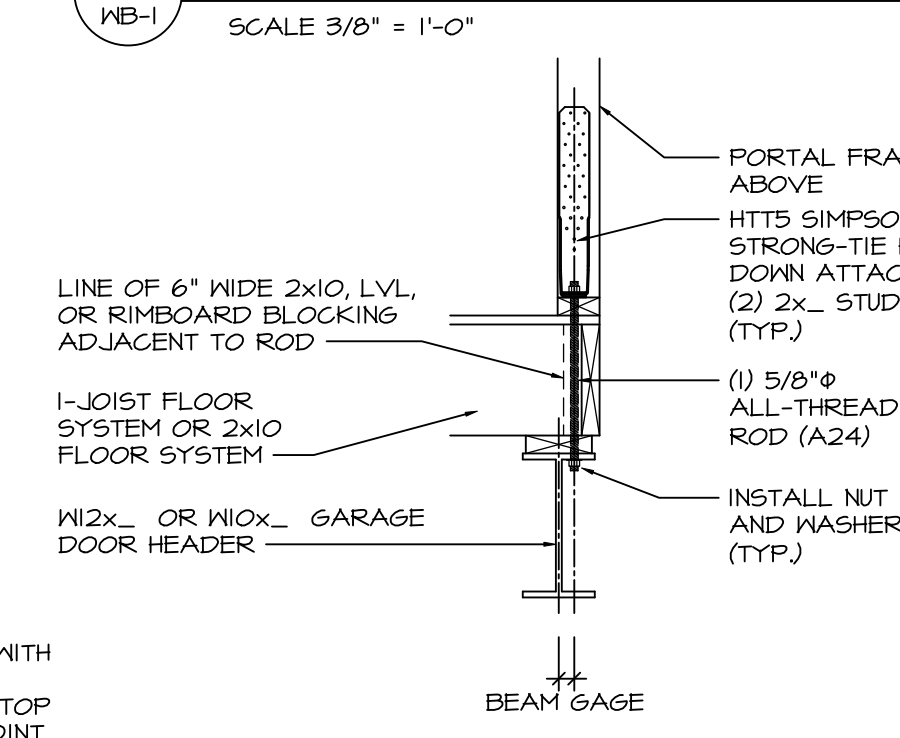
6 HOLD-DOWN DETAIL: FOUNDATION
SCALE 3/8" = 1'-0"
WB-1



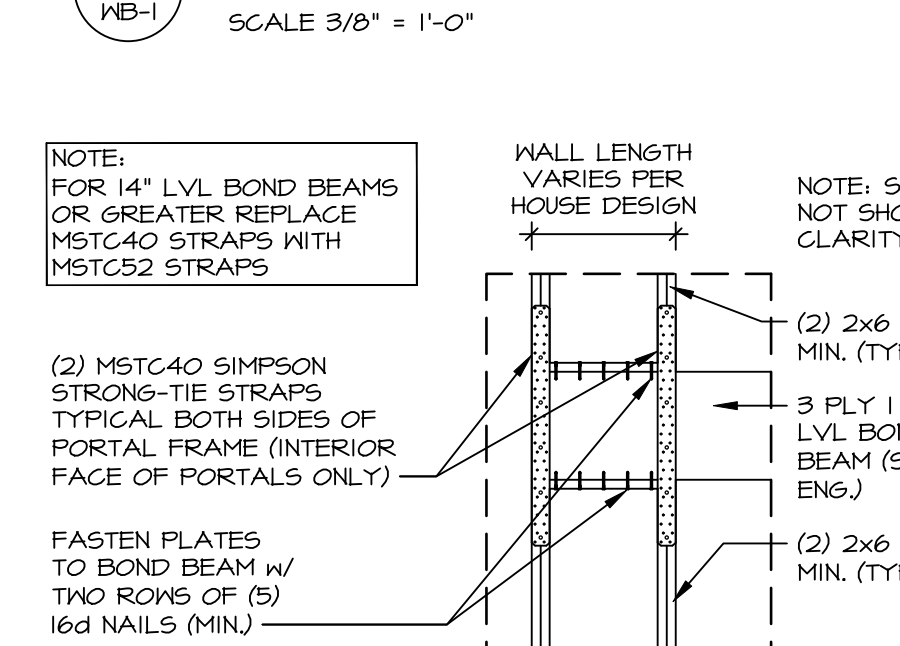
7 HOLD-DOWN DETAIL: FRAMED FLOOR
SCALE 3/8" = 1'-0"
WB-1



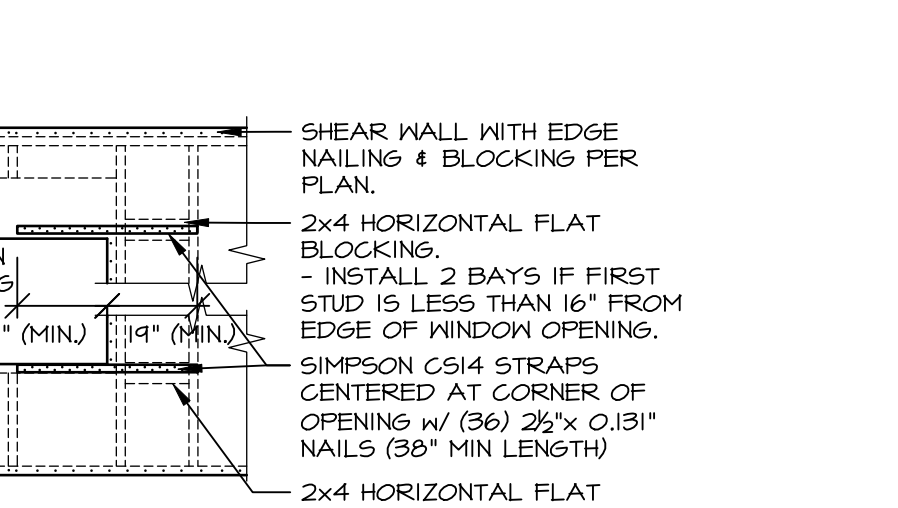
8 BRACED WALL PANEL TO STEEL BEAM CONNECTION
SCALE 3/8" = 1'-0"
WB-1



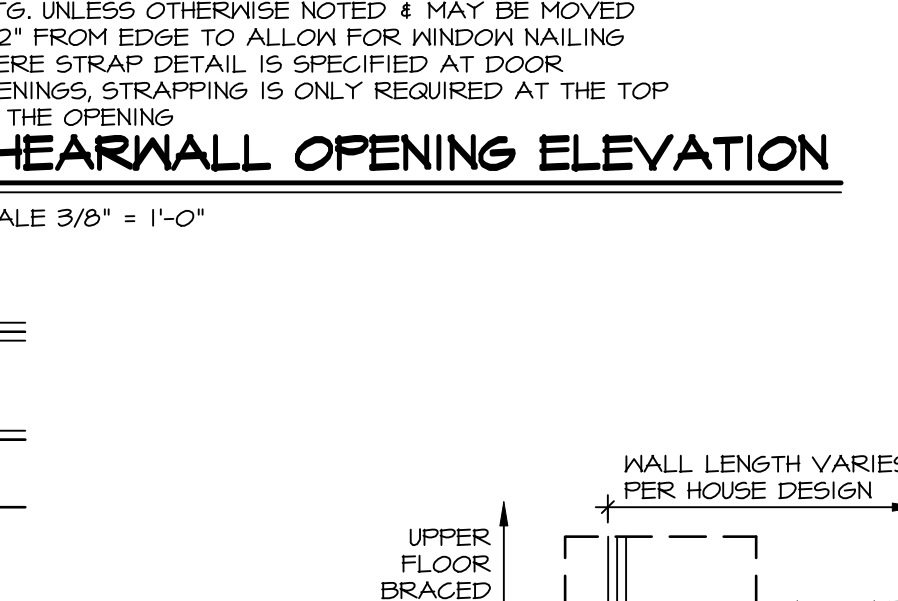
9 CONNECTING PORTALS BETWEEN FLOORS
SCALE 3/8" = 1'-0"
WB-1



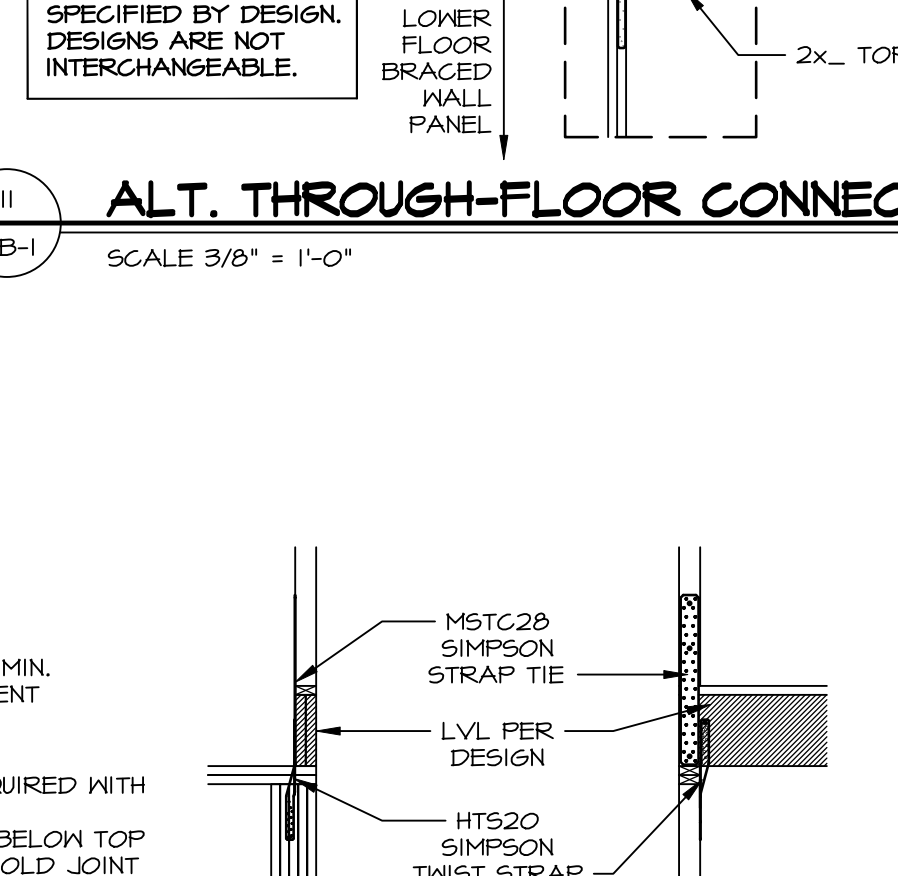
10 STACKED PORTAL: MIDDLE CONNECTION
SCALE 3/8" = 1'-0"
WB-1



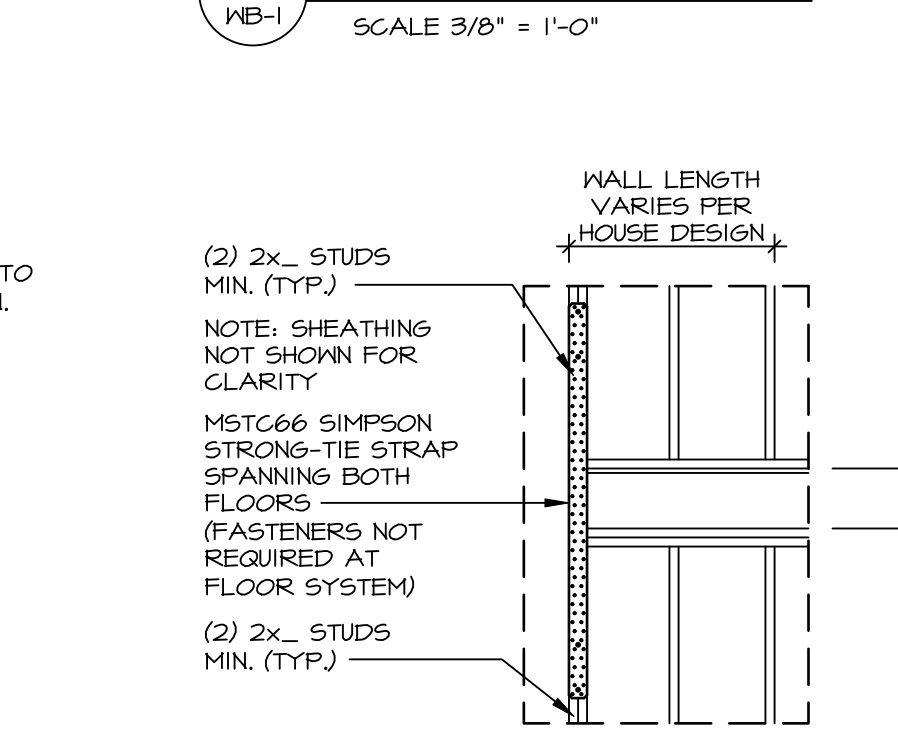
11 ALT. THROUGH-FLOOR CONNECTION
SCALE 3/8" = 1'-0"
WB-1



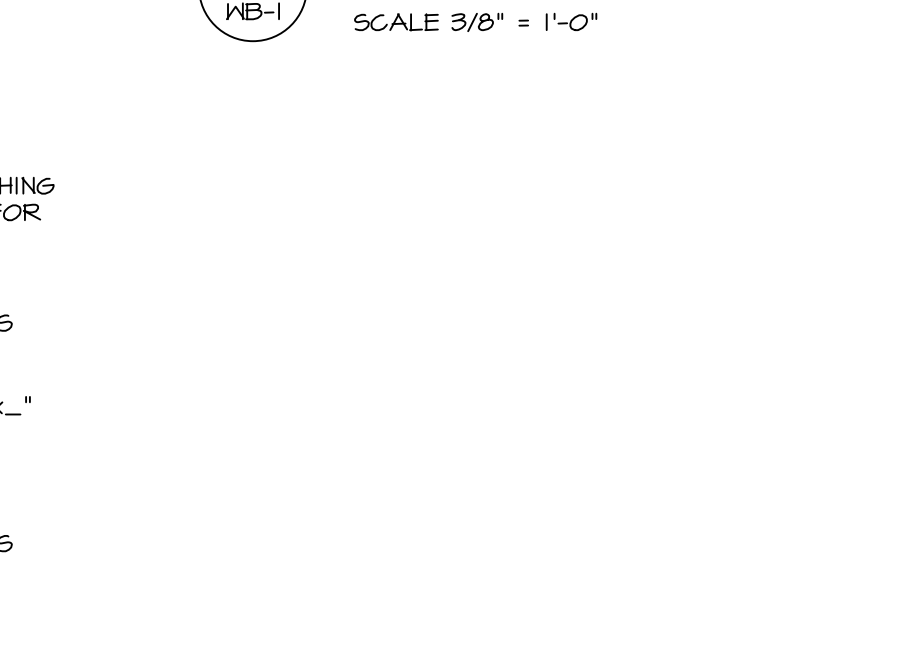
12 ENGINEERED STACKED PORTAL
SCALE 3/8" = 1'-0"
WB-1



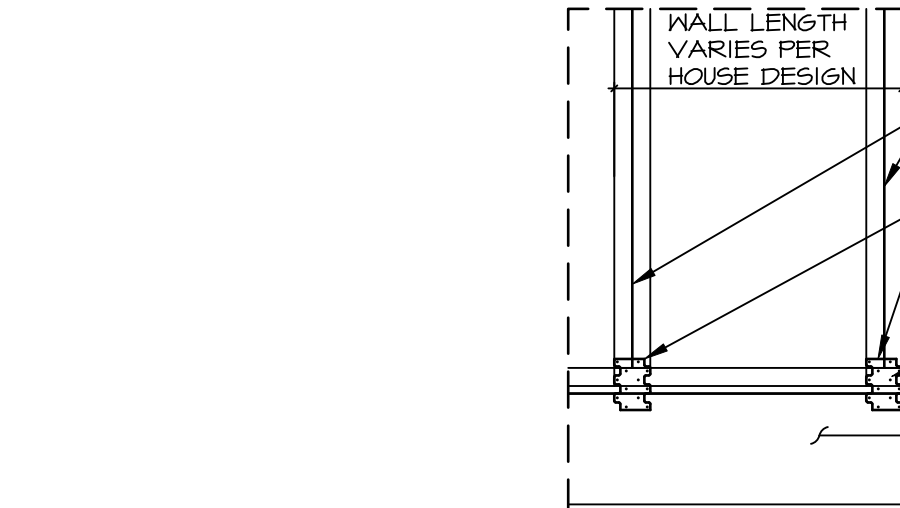
13 UPLIFT AT LVL CONNECTION
SCALE 3/8" = 1'-0"
WB-1



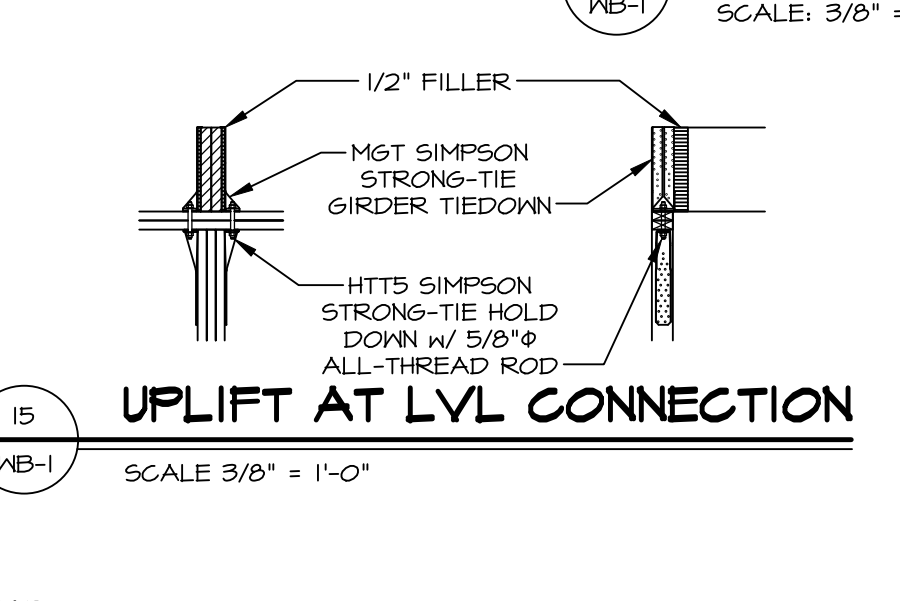
14 FLUSH LVL BEAM CONNECTION
SCALE 3/8" = 1'-0"
WB-1



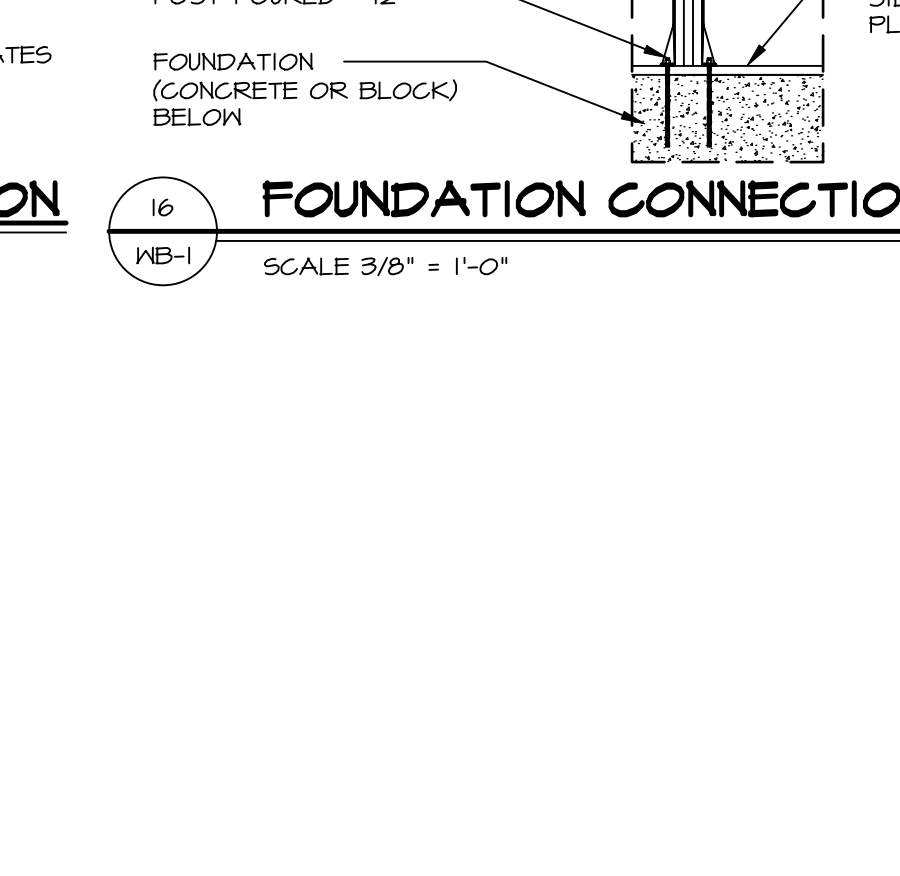
15 UPLIFT AT LVL CONNECTION
SCALE 3/8" = 1'-0"
WB-1



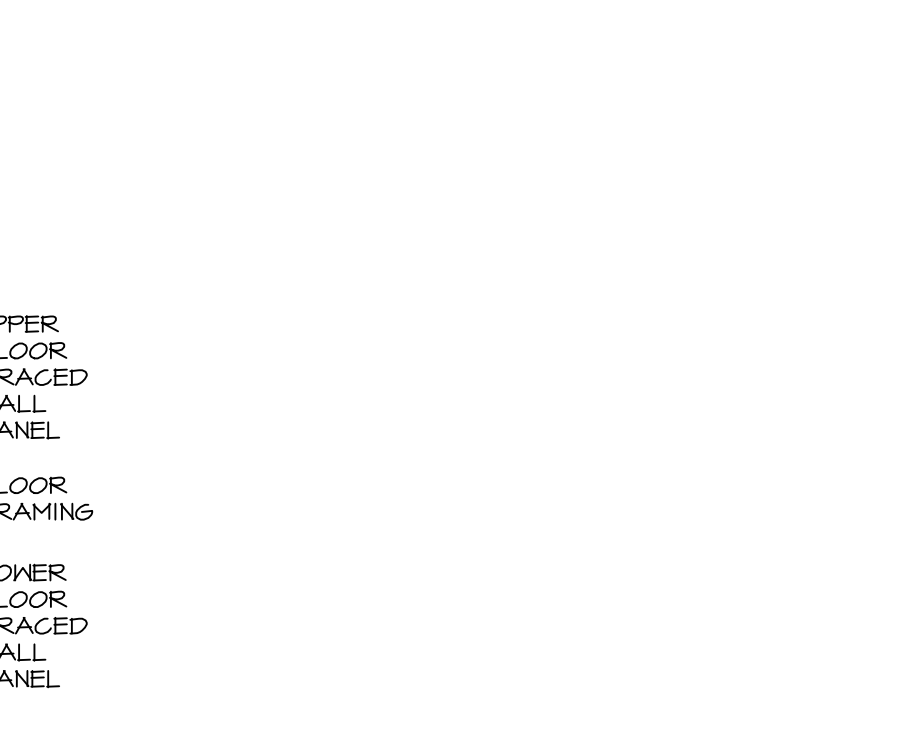
16 FOUNDATION CONNECTION
SCALE 3/8" = 1'-0"
WB-1



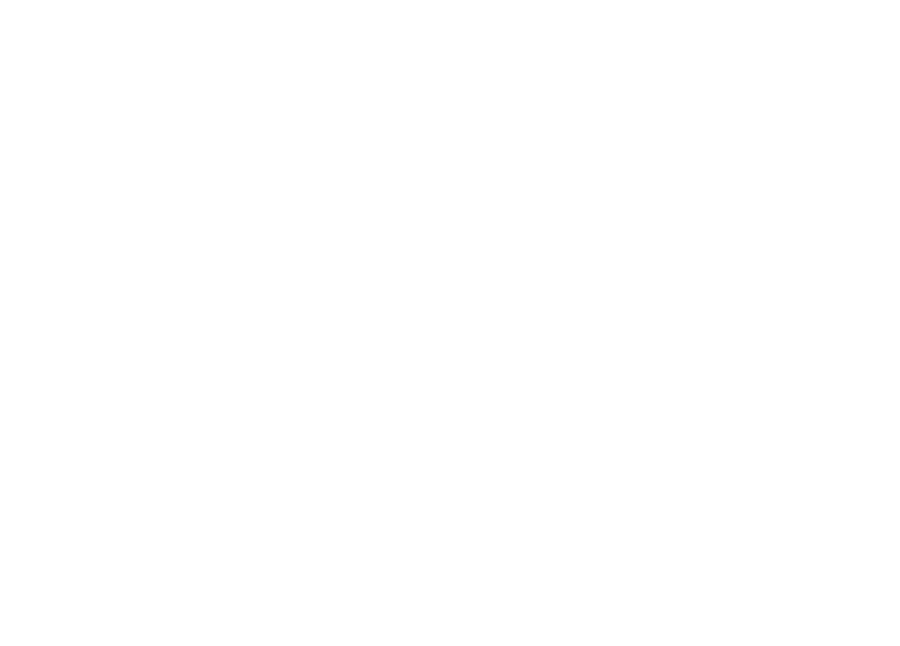
17 BLOCKED WALL CONSTRUCTION
SCALE 3/8" = 1'-0"
WB-1



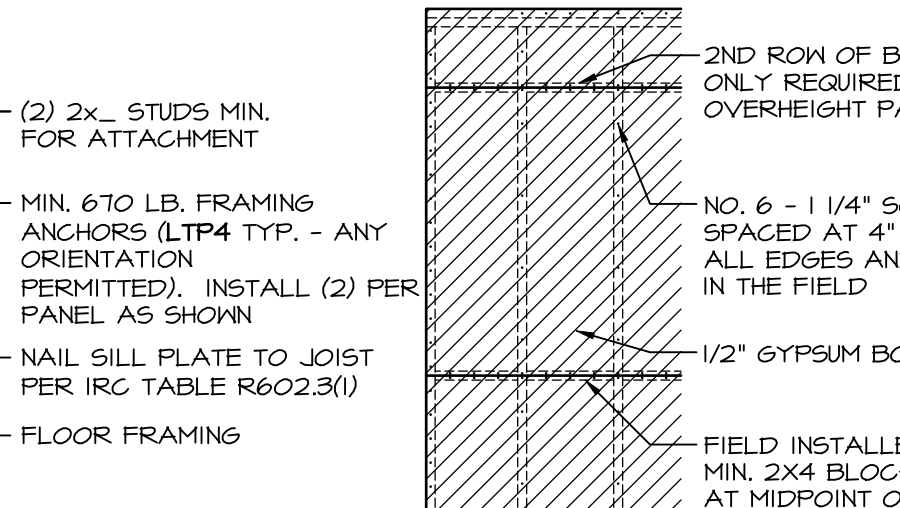
18 LVL TO CONCRETE WALL CONNECTION
SCALE 3/8" = 1'-0"
WB-1



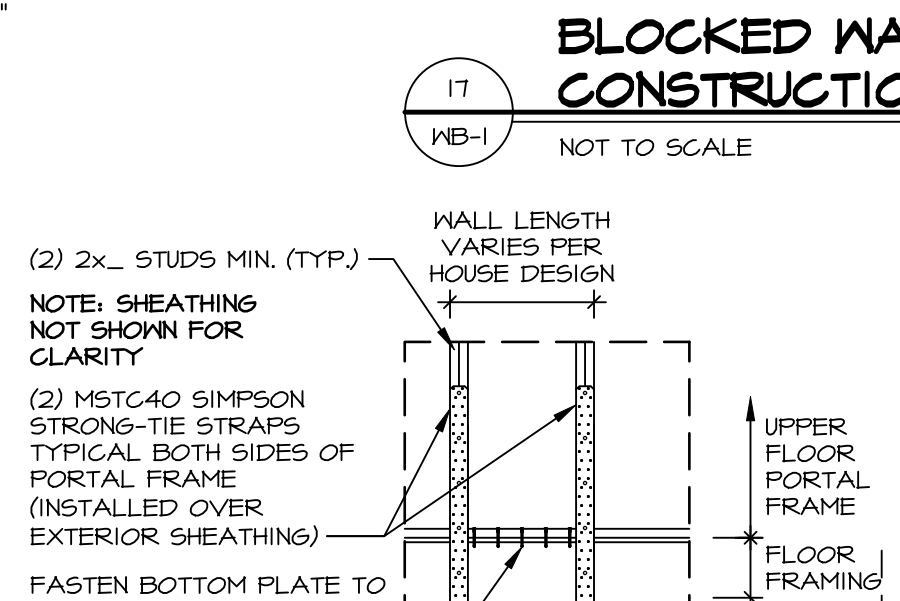
19 FRAMED FLOOR CONNECTION
SCALE 3/8" = 1'-0"
WB-1



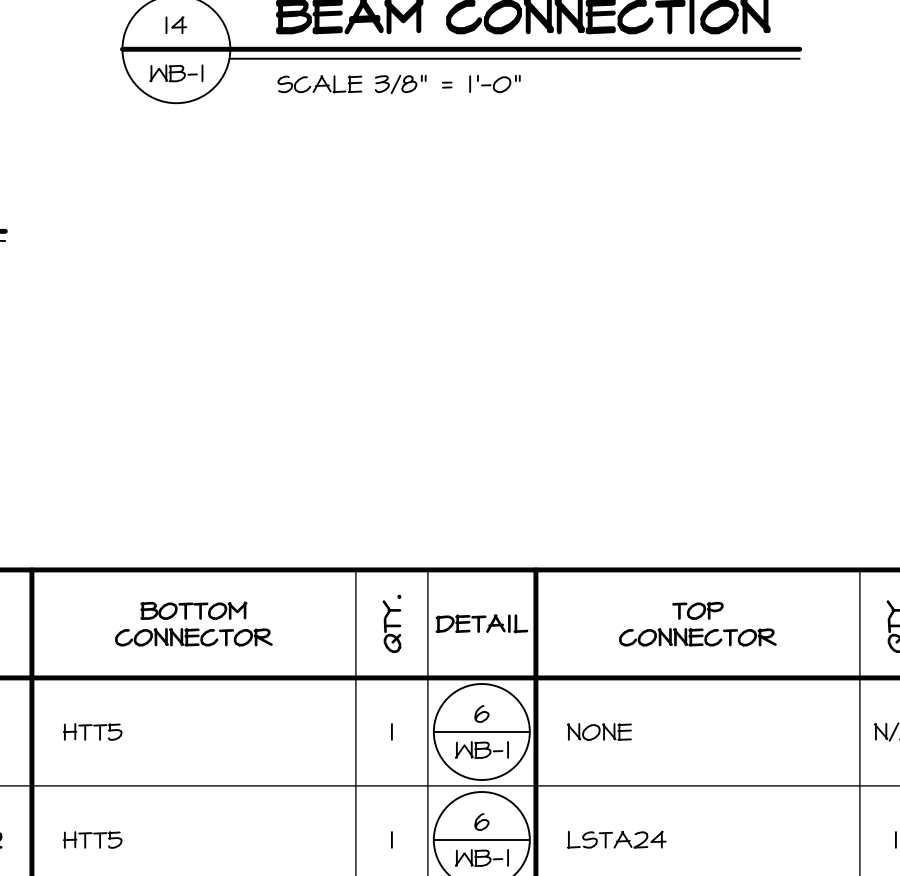
20 SHEARWALL OPENING ELEVATION
SCALE 3/8" = 1'-0"
WB-1



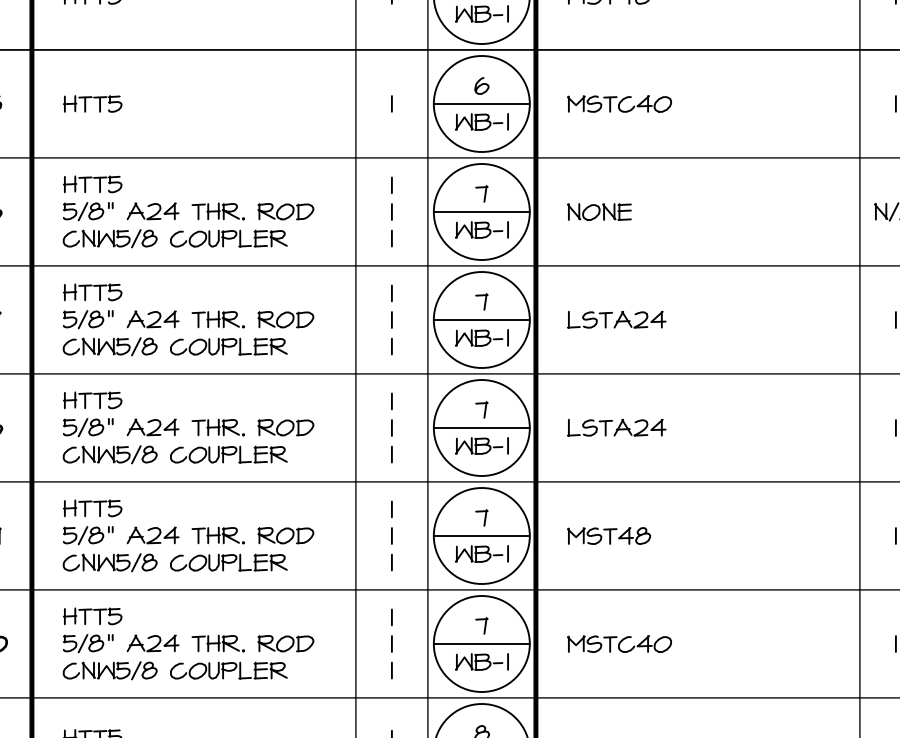
21 UPLIFT AT LVL CONNECTION
SCALE 3/8" = 1'-0"
WB-1



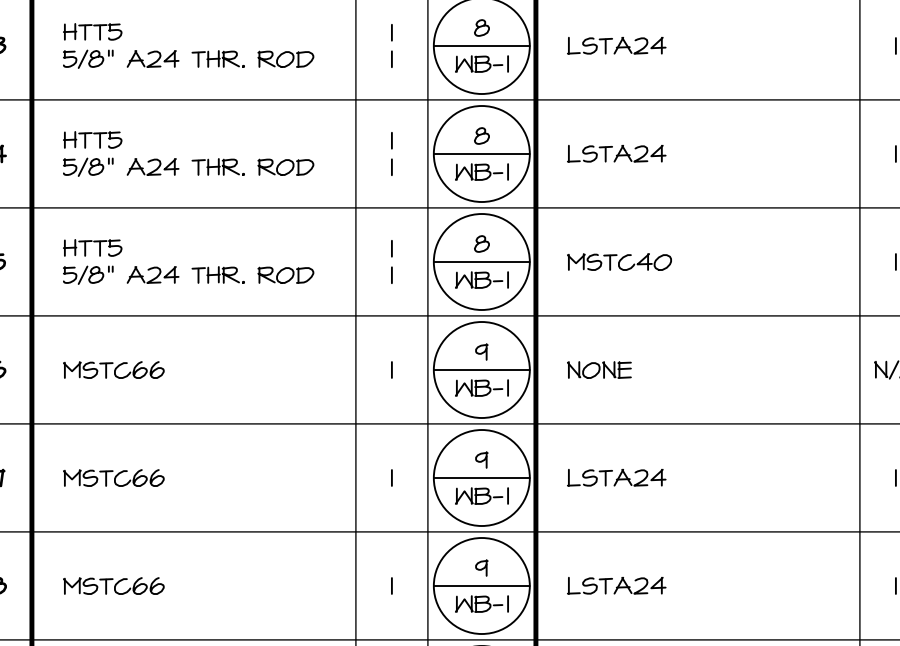
22 CONNECTING BRACED PANELS BETWEEN FLOORS
SCALE 3/8" = 1'-0"
WB-1



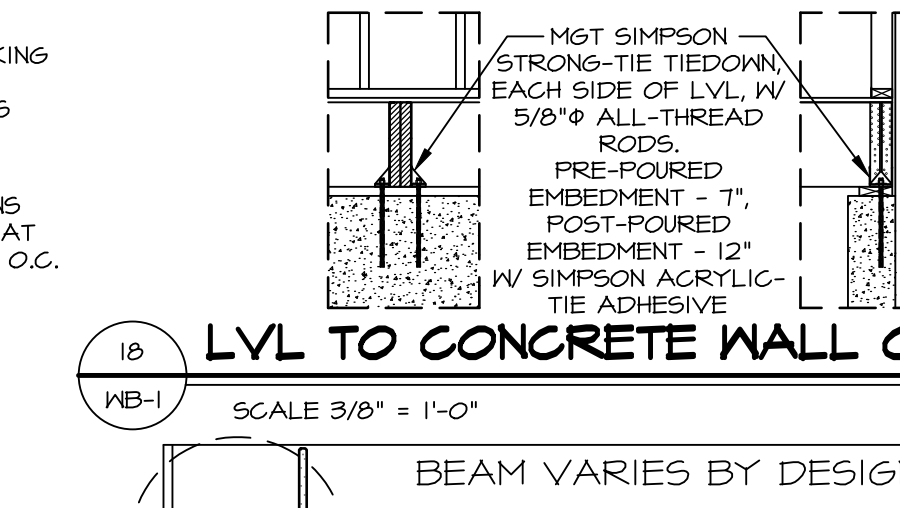
23 HOLD-DOWN DETAIL: FOUNDATION
SCALE 3/8" = 1'-0"
WB-1



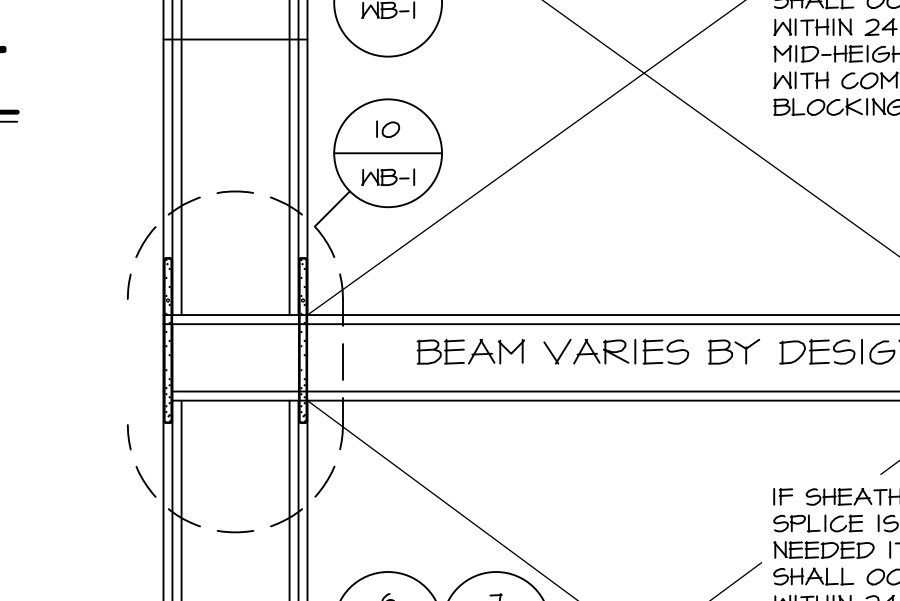
24 BRACED WALL PANEL TO STEEL BEAM CONNECTION
SCALE 3/8" = 1'-0"
WB-1



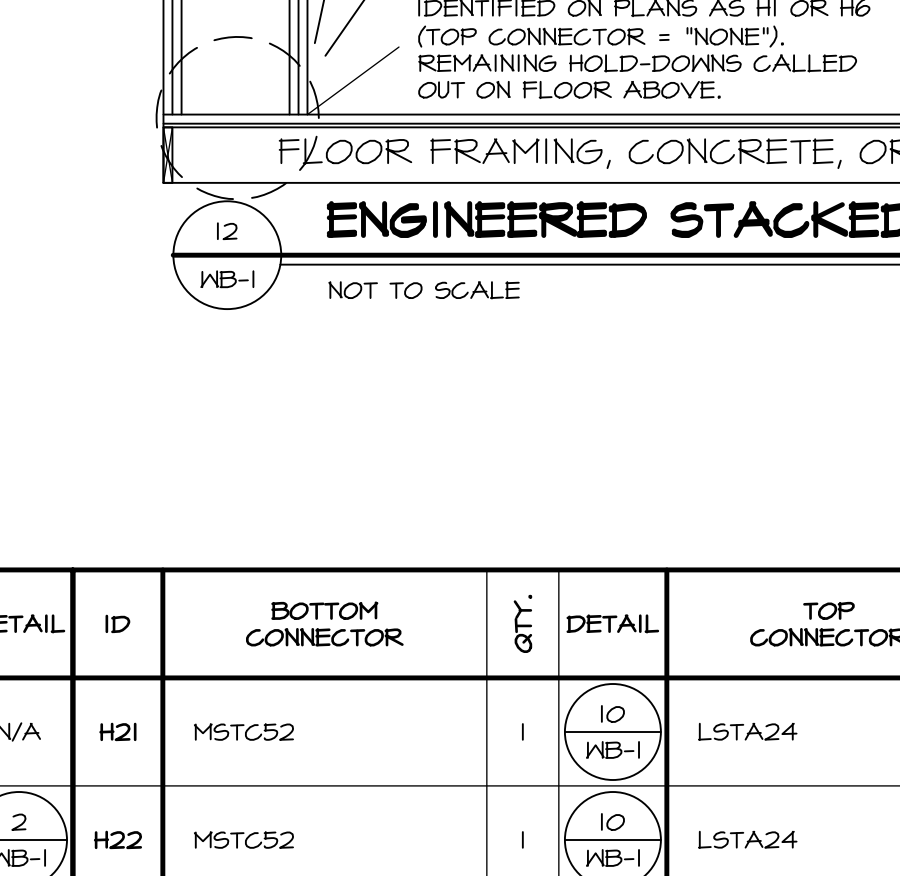
25 THROUGH-FLOOR CONNECTION
SCALE 3/8" = 1'-0"
WB-1



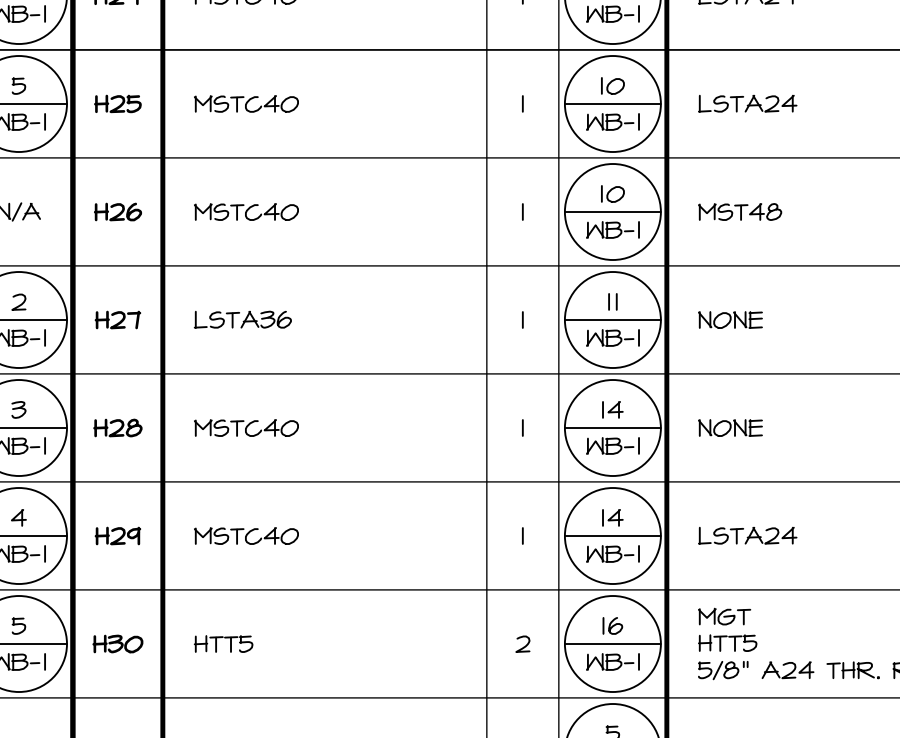
26 HOLD-DOWN DETAIL: FRAMED FLOOR
SCALE 3/8" = 1'-0"
WB-1



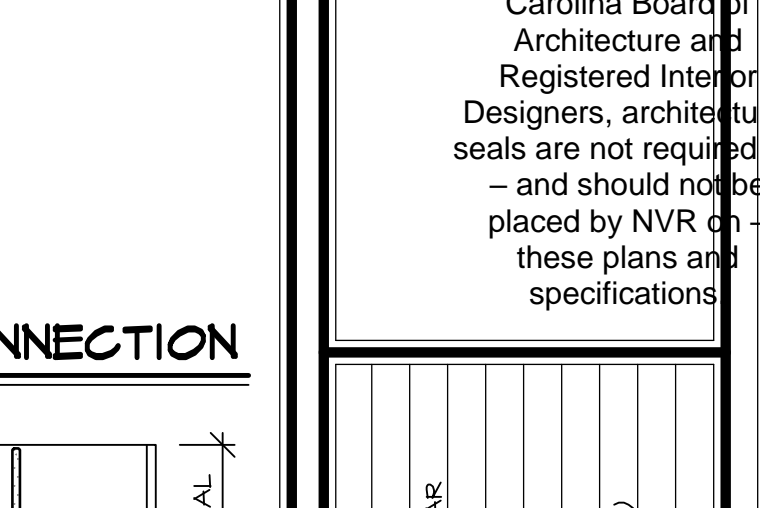
27 BRACED WALL PANEL TO STEEL BEAM CONNECTION
SCALE 3/8" = 1'-0"
WB-1



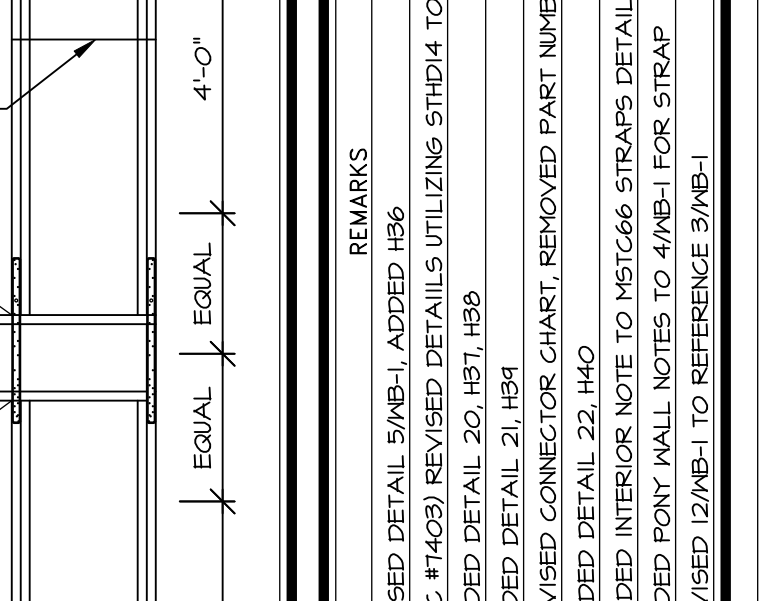
28 CONNECTING PORTALS BETWEEN FLOORS
SCALE 3/8" = 1'-0"
WB-1



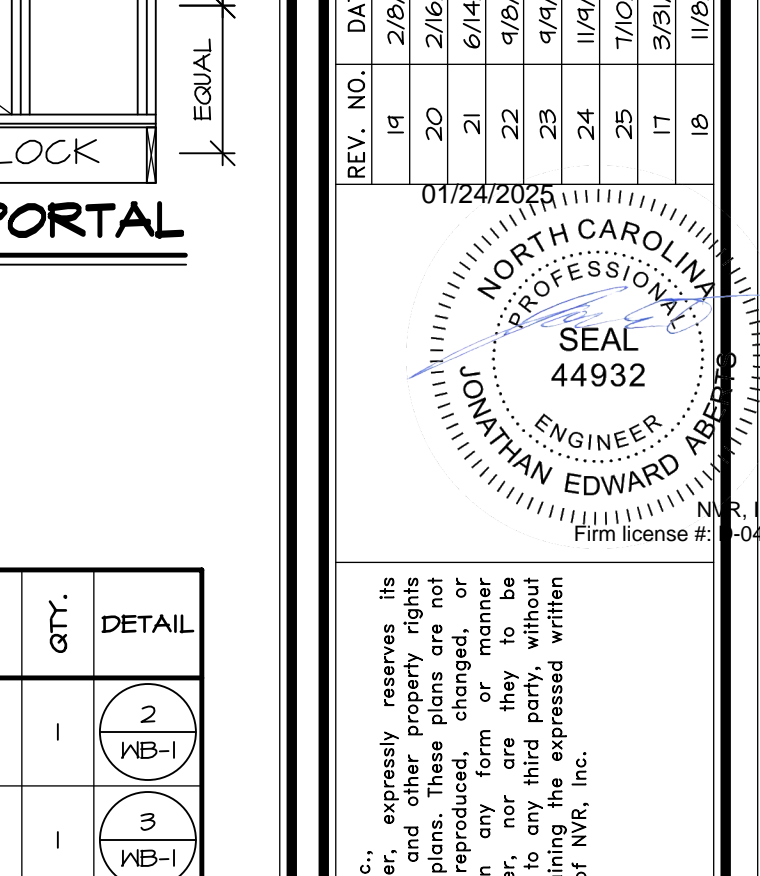
29 STACKED PORTAL: MIDDLE CONNECTION
SCALE 3/8" = 1'-0"
WB-1



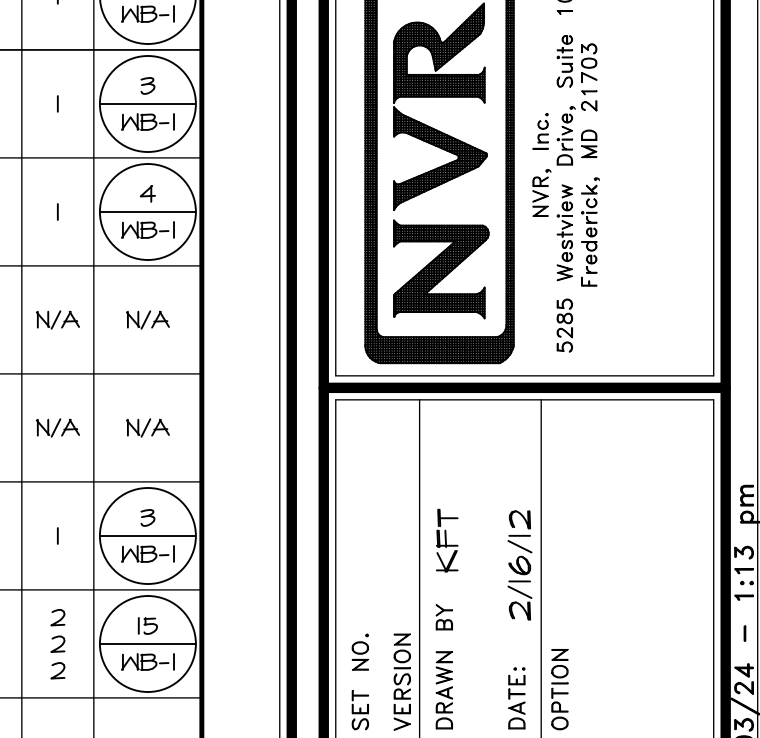
30 SHEATHING AT HEADER / PANEL CONNECTION
SCALE 3/8" = 1'-0"
WB-1



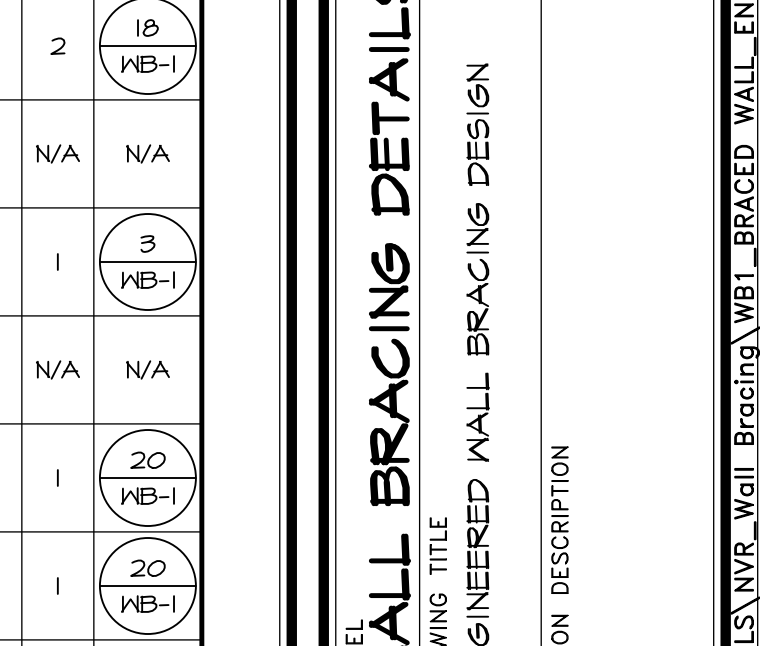
31 STACKED ENGINEERED PORTAL: HEADER / PANEL CONNECTION
SCALE 3/8" = 1'-0"
WB-1



32 ENGINEERED PORTAL: TYP. HEADER / PANEL CONNECTION
SCALE 3/8" = 1'-0"
WB-1



33 ENGINEERED PORTAL WITH PONY WALL
SCALE 3/8" = 1'-0"
WB-1



34 THROUGH-FLOOR CONNECTION
SCALE 3/8" = 1'-0"
WB-1

ID	BOTTOM CONNECTOR	QTY.	DETAIL	TOP CONNECTOR	QTY.	DETAIL	ID	BOTTOM CONNECTOR	QTY.	DETAIL	TOP CONNECTOR	QTY.	DETAIL
H1	HTTS	1	6 WB-1	NONE	N/A	N/A	H21	MSTC52	1	10 WB-1	LSTA24	1	2 WB-1
H2	HTTS	1	6 WB-1	LSTA24	1	2 WB-1	H22	MSTC52	1	10 WB-1	LSTA24	1	3 WB-1
H3	HTTS	1	6 WB-1	LSTA24	1	3 WB-1	H23	MSTC52	1	10 WB-1	MST48	1	4 WB-1
H4	HTTS	1	6 WB-1	MST48	1	4 WB-1	H24	MSTC40	1	10 WB-1	LSTA24	1	2 WB-1
H5	HTTS	1	6 WB-1	MSTC40	1	5 WB-1	H25	MSTC40	1	10 WB-1	LSTA24	1	3 WB-1
H6	HTTS 5/8" A24 THR. ROD C/N5/8 COUPLER	1	7 WB-1	NONE	N/A	N/A	H26	MSTC40	1	10 WB-1	MST48	1	4 WB-1
H7	HTTS 5/8" A24 THR. ROD C/N5/8 COUPLER	1	7 WB-1	LSTA24	1	2 WB-1	H27	LSTA36	1	11 WB-1	NONE	N/A	N/A
H8	HTTS 5/8" A24 THR. ROD C/N5/8 COUPLER	1	7 WB-1	LSTA24	1	3 WB-1	H28	MSTC40	1	14 WB-1	NONE	N/A	N/A
H9	HTTS 5/8" A24 THR. ROD C/N5/8 COUPLER	1	7 WB-1	MST48	1	4 WB-1	H29	MSTC40	1	14 WB-1	LSTA24	1	3 WB-1
H10	HTTS 5/8" A24 THR. ROD C/N5/8 COUPLER	1	7 WB-1	MSTC40	1	5 WB-1	H30	HTTS	2	16 WB-1	M&T HTTS 5/8" A24 THR. ROD	1	15 WB-1
H11	HTTS 5/8" A24 THR. ROD	1	8 WB-1	NONE	N/A	N/A	H31	MSTC40	1	5 WB-1	NONE	N/A	N/A
H12	HTTS 5/8" A24 THR. ROD	1	8 WB-1	LSTA24	1	2 WB-1	H32	MSTC40	1	5 WB-1	LSTA24	1	3 WB-1
H13	HTTS 5/8" A24 THR. ROD	1	8 WB-1	LSTA24	1	3 WB-1	H33	NONE	N/A	N/A	M&T	2	18 WB-1
H14	HTTS 5/8" A24 THR. ROD	1	8 WB-1	LSTA24	1	4 WB-1	H34	LTP4	1	19 WB-1	NONE	N/A	N/A
H15	HTTS 5/8" A24 THR. ROD	1	8 WB-1	MSTC40	1	5 WB-1	H35	LTP4	1	19 WB-1	LSTA24	1	3 WB-1
H16	MSTC66	1	9 WB-1	NONE	N/A	N/A	H36	MSTC52	1	5 WB-1	NONE	N/A	N/A
H17	MSTC66	1	9 WB-1	LSTA24	1	2 WB-1	H37	CS14	1	20 WB-1	CS14	1	20 WB-1
H18	MSTC66	1	9 WB-1	LSTA24	1	3 WB-1	H38	NONE	N/A	N/A	CS14	1	20 WB-1
H19	MSTC66	1	9 WB-1	MST48	1	4 WB-1	H39	MSTC28 HTS20	1	21 WB-1	NONE	N/A	N/A
H20	MSTC52	1	10 WB-1	NONE	N/A	N/A	H40	MSTC66	1	22 WB-1	NONE	N/A	N/A

NOTES: THREADED ROD PART INCLUDES (2) NUTS AND (2) WASHERS FOR CMU FOUNDATIONS SEE 12/FD-1.

As directed by the North Carolina Board of Registered Interior Designers, architectural seals are not required for these plans and specifications.

REVISIONS:

REV. NO.	DATE	DESCRIPTION
14	2/6/22	NS - REVISED DETAIL 5WB-1 - ADDED 15B
20	2/6/22	ADM - GOC #14039 REVISED DETAILS UTILIZING STD#14 TO INCLUDE REBAR
21	5/14/23	CEL - ADDED DETAIL 20, 15T, 15B
22	4/6/23	LDK - ADDED DETAIL 21, 15H
23	4/6/23	DLR - REVISED CONNECTOR CHART, REMOVED PART NUMBERS
24	11/1/23	DLR - ADDED DETAIL 22, 14H
25	7/10/24	ARS - ADDED INTERIOR NOTE TO INST666 STRAPS DETAIL #8 (ARC-11959)
17	3/31/20	CEL - ADDED INTERIOR NOTE TO 4WB-1 FOR STRAP
18	11/6/21	CEL - REVISED 12WB-1 TO REFERENCE 3WB-1

07/24/2025

NORTH CAROLINA PROFESSIONAL SEAL 44932

EDWARD

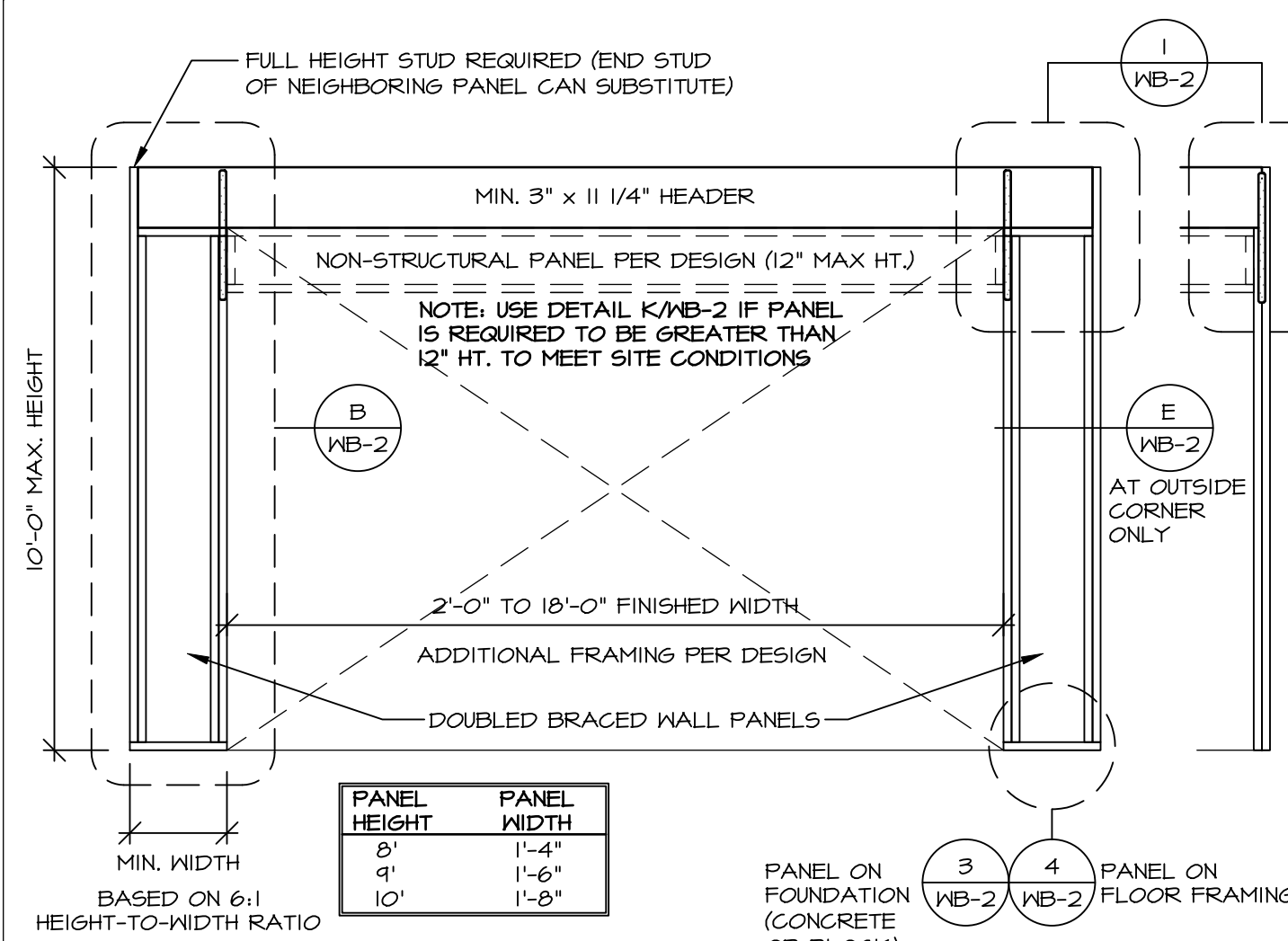
REMARKS:

MODEL: WALL BRACING DETAILS
DRAWING TITLE: ENGINEERED WALL BRACING DESIGN
DATE: 2/16/12
OPTION:

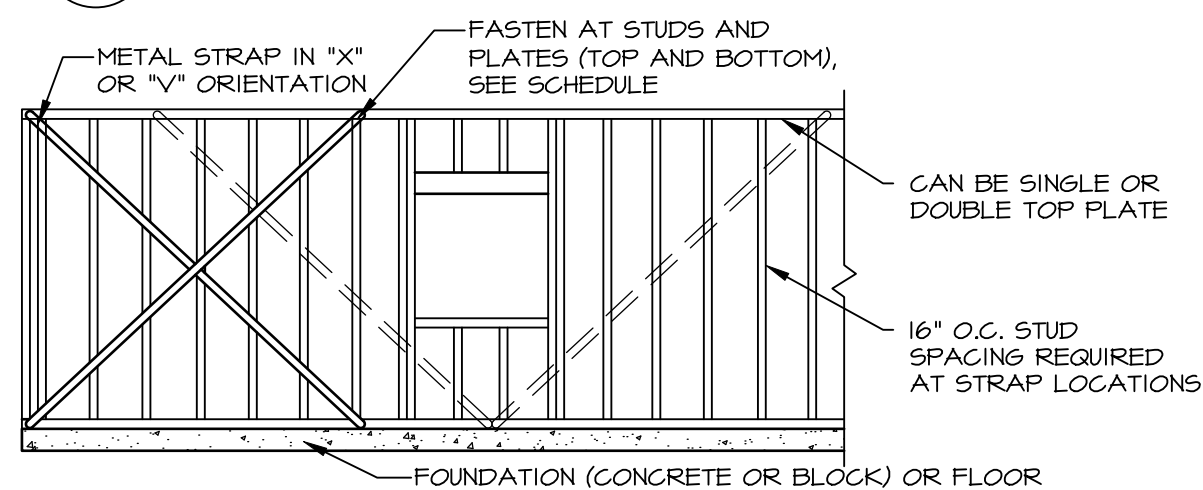
SET NO. VERSION
DRAWN BY KFT
DATE: 2/16/12
OPTION:

PROJECTS\DETAILS\NVR_Wall_Bracing\WB-1_Braced Wall_Eng.dwg 07/03/24 - 1:13 pm

WB-1



A CONTINUOUSLY SHEATHED PORTAL FRAME
SCALE: 3/8" = 1'-0"



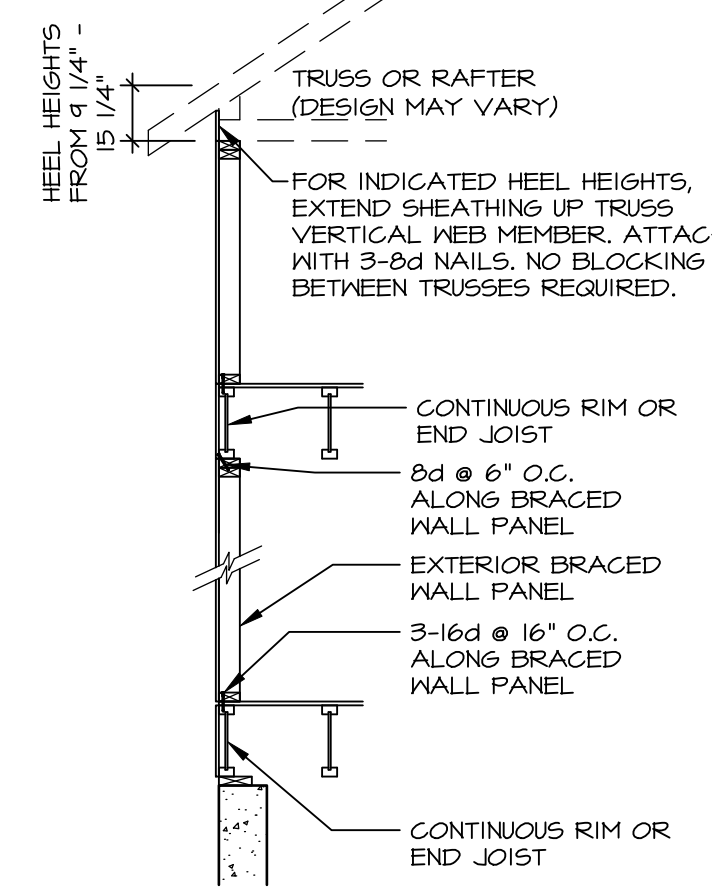
B PORTAL FRAME: SHEATHING APPLICATION DETAIL
SCALE: 3/8" = 1'-0"

PANEL HEIGHT	PANEL WIDTH
8'	1'-4"
9'	1'-6"
10'	1'-8"

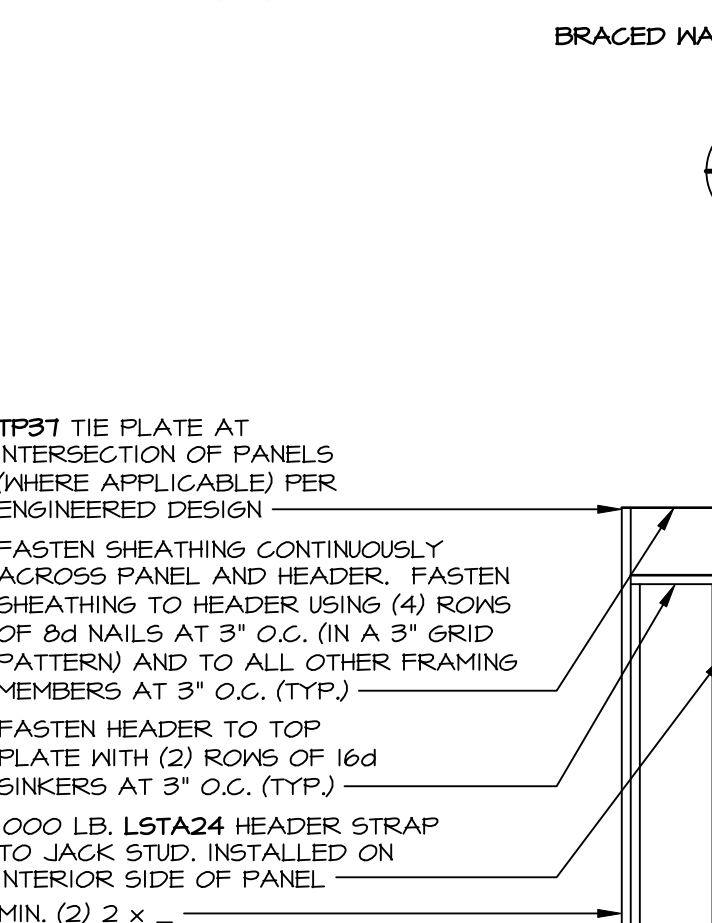
F LET-IN BRACING
NOT TO SCALE

NOTE: FOR TRUSSES WITH HEEL HEIGHTS GREATER THAN 15'-1/4", THE INTERIOR CEILING DIAPHRAGM AND EXTERIOR SHEATHING INSTALLED ON EXPOSED TRUSS HEELS ARE USED FOR LATERAL SUPPORT.

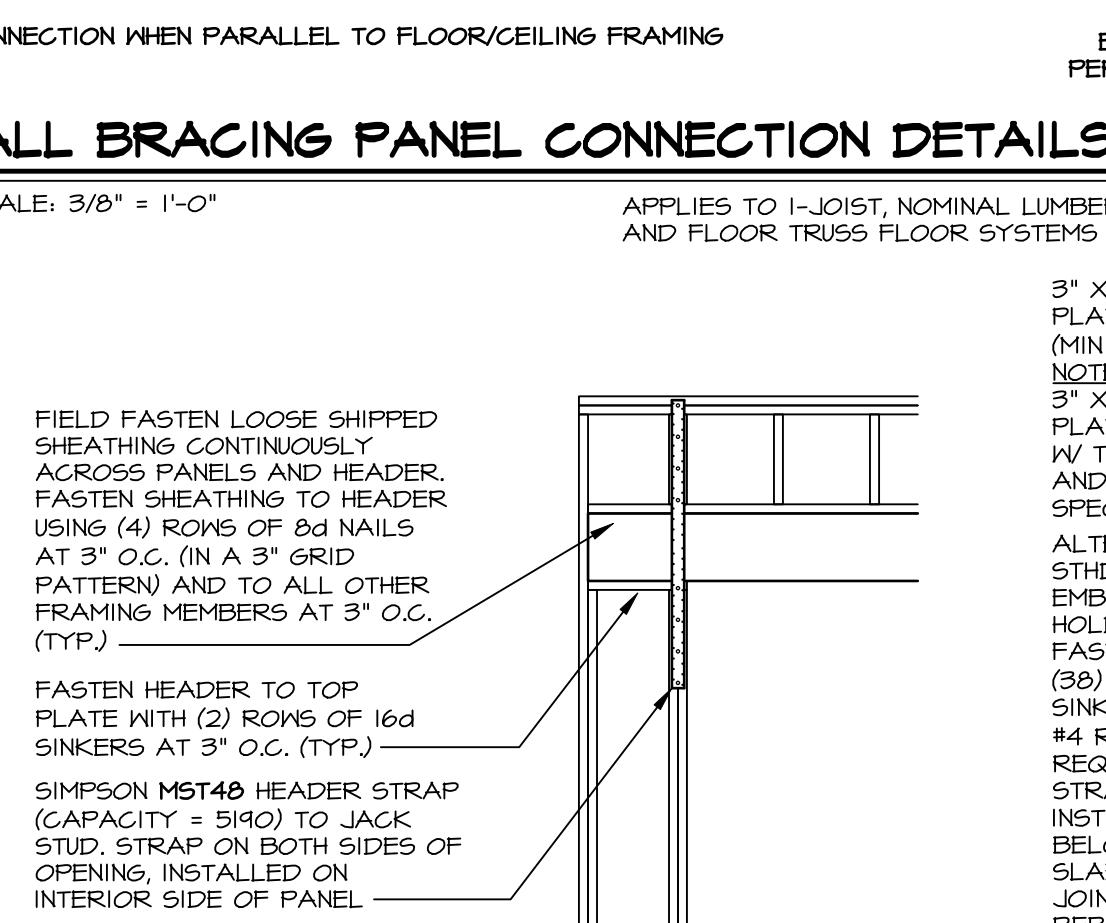
SEE ALTERNATE EXTERIOR WALL BRACING PANEL AS REQUIRED WITH CANTILEVER.



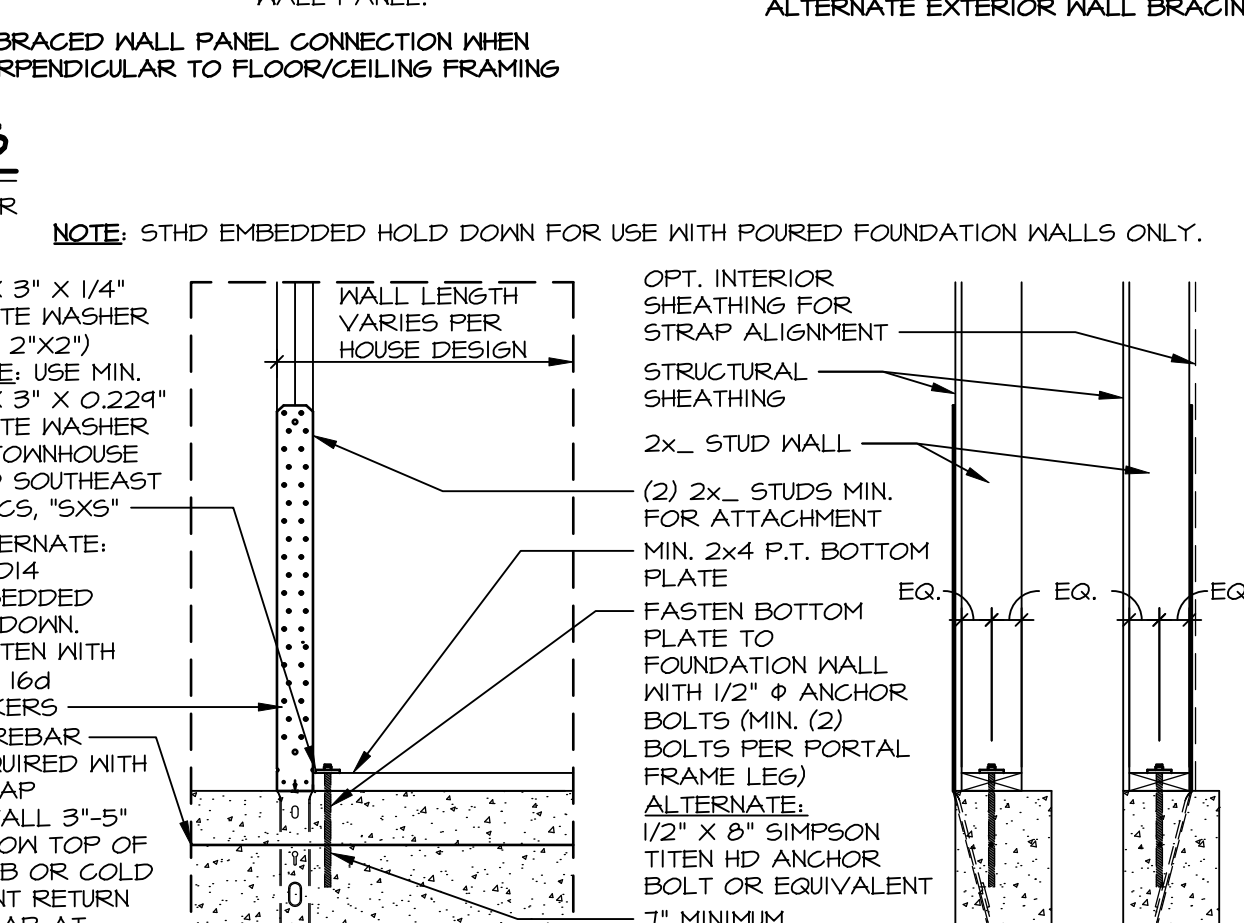
H WALL BRACING PANEL CONNECTION DETAILS
SCALE: 3/8" = 1'-0"



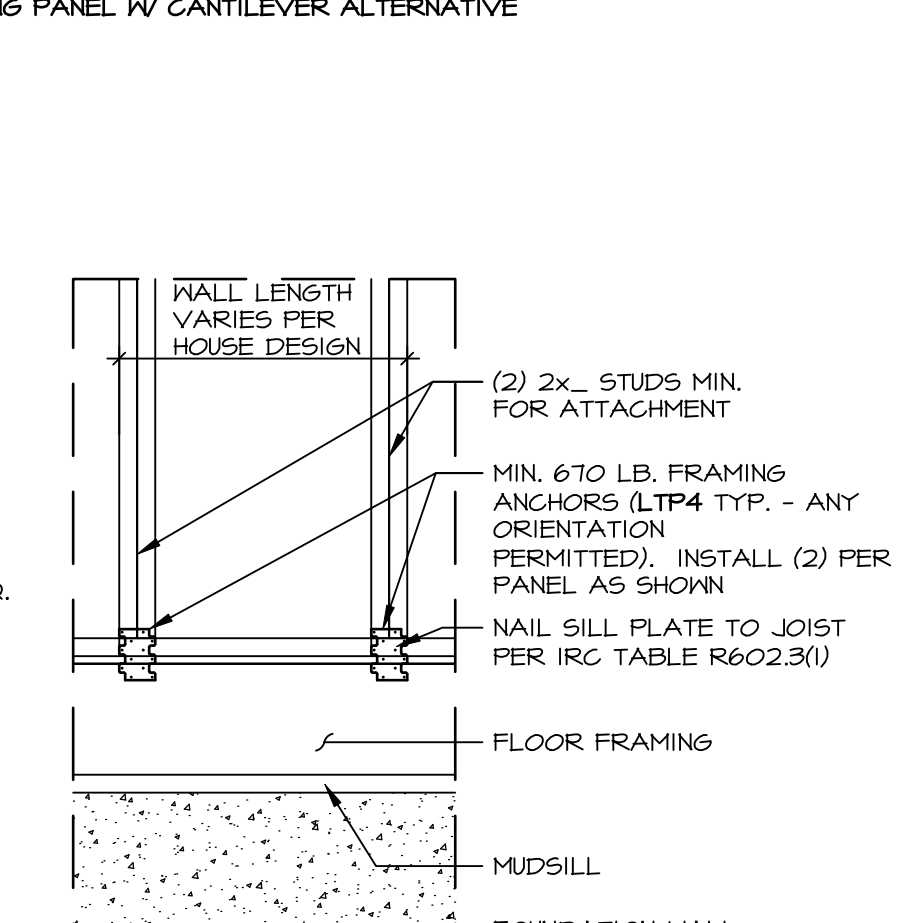
I CONTINUOUSLY SHEATHED PORTAL: TYP. HEADER / PANEL CONNECTION
SCALE: 3/8" = 1'-0"



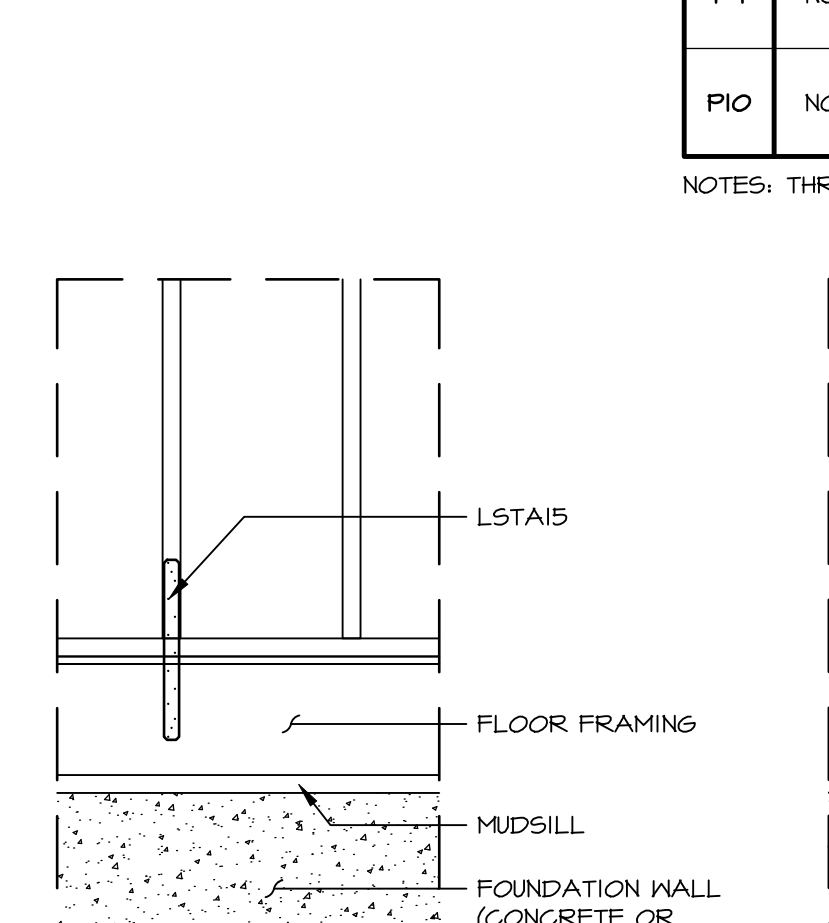
J ALTERNATE PORTAL FRAME: HEADER / PANEL CONNECTION
SCALE: 3/8" = 1'-0"



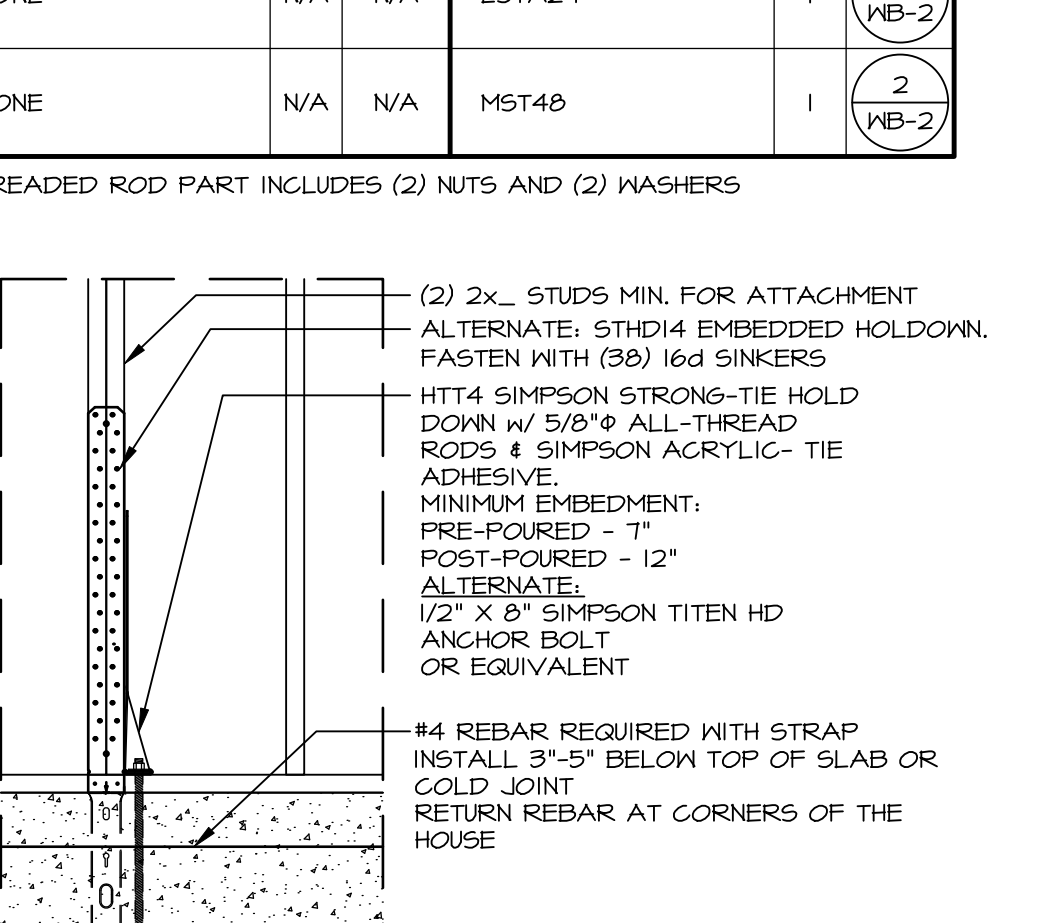
K HOLD-DOWN DETAIL: FOUNDATION
SCALE: 3/4" = 1'-0"



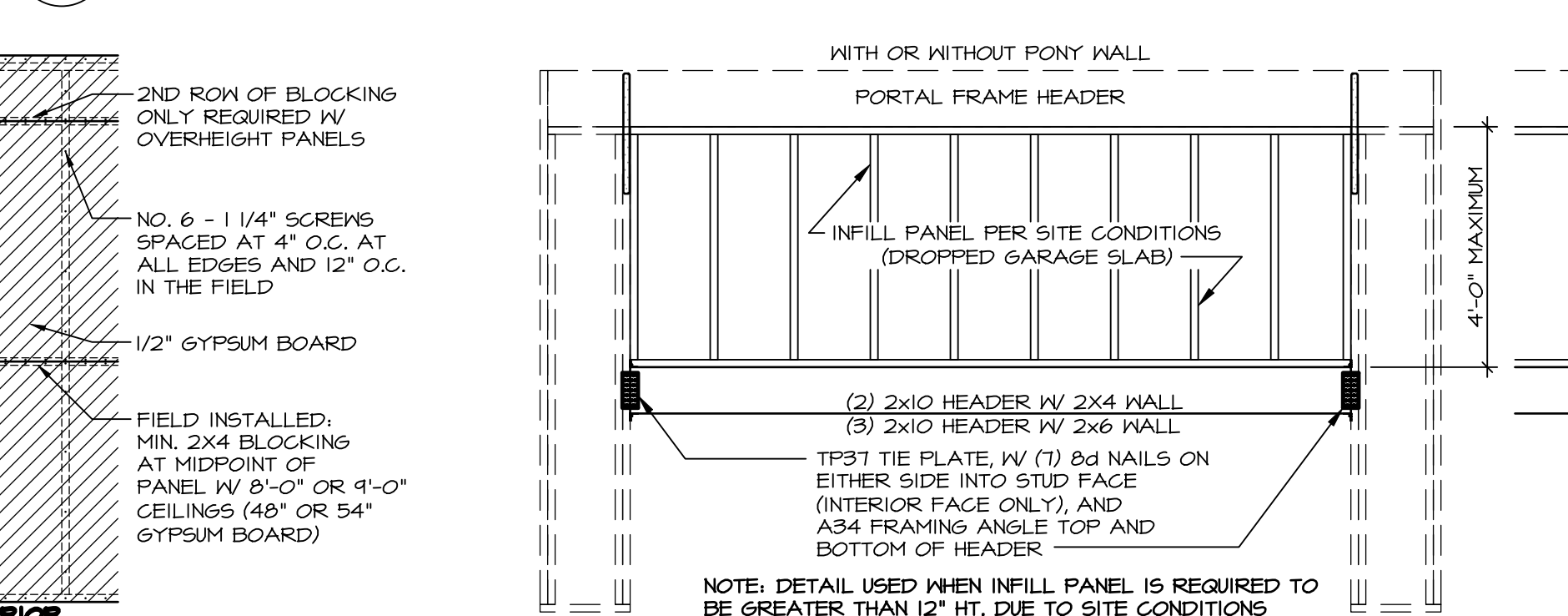
L HOLD-DOWN DETAIL: FRAMED FLOOR
SCALE: 3/4" = 1'-0"



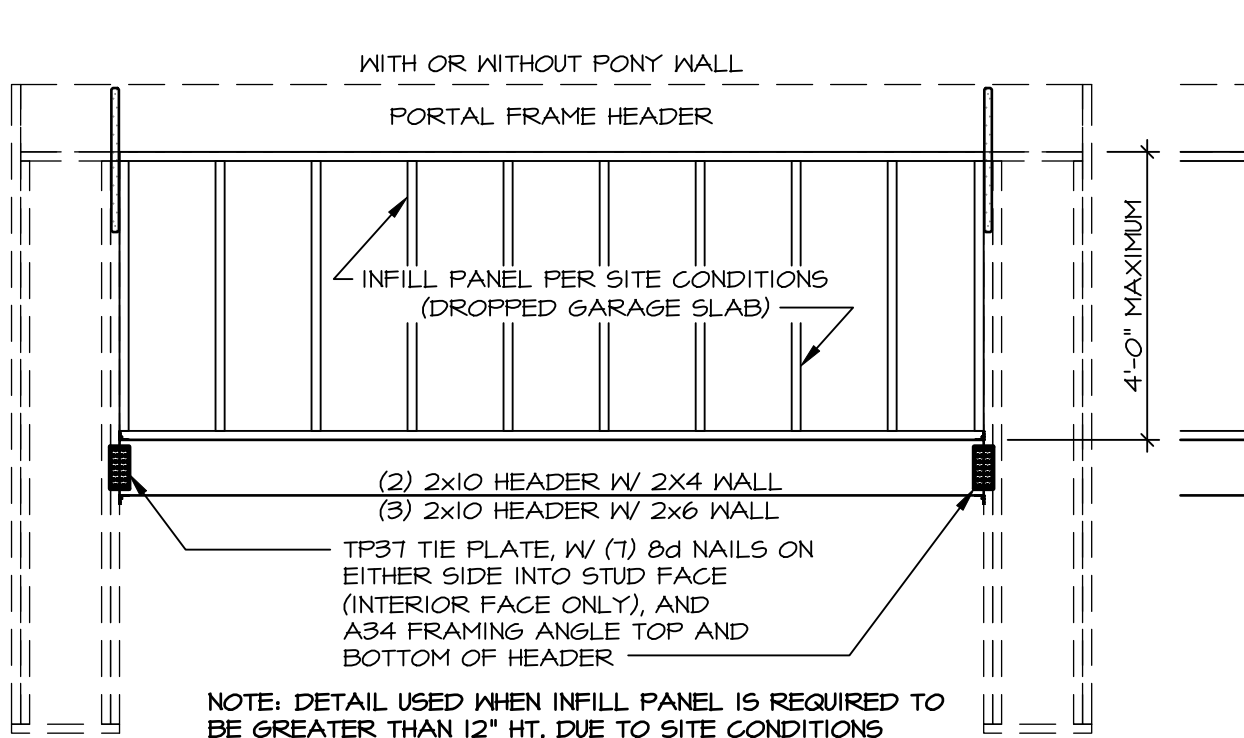
M HOLD-DOWN DETAIL: FRAMED FLOOR
SCALE: 3/4" = 1'-0"



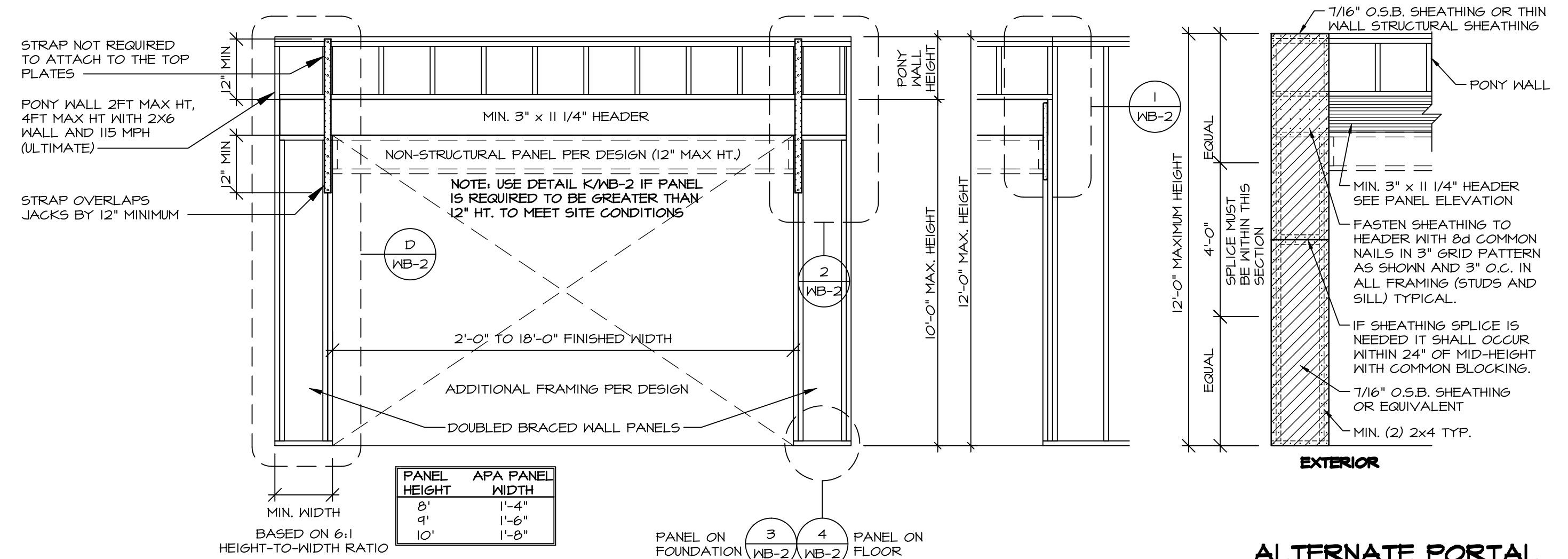
N HOLD-DOWN DETAIL: FOUNDATION
SCALE: 3/4" = 1'-0"



G BLOCKED WALL CONSTRUCTION
NOT TO SCALE



K INFILL PANEL DETAIL
NOT TO SCALE



C ALTERNATE PORTAL FRAME
SCALE: 3/8" = 1'-0"

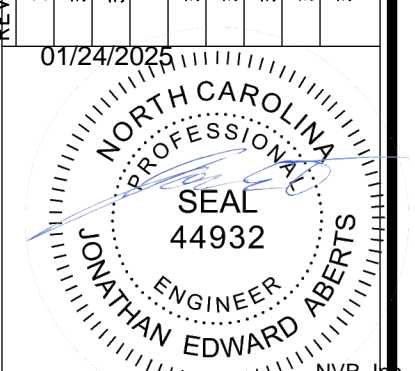
D ALTERNATE PORTAL FRAME: SHEATHING APPLICATION DETAIL
SCALE: 3/8" = 1'-0"

ID	BOTTOM CONNECTOR	QTY.	DETAIL	TOP CONNECTOR	QTY.	DETAIL
P1	3"x3"x1/4" PLATE WASHER	1	(3) (WB-2)	NONE	N/A	N/A
P2	1/2" THREADED ROD	1	(3) (WB-2)	LSTA24	1	(1) (WB-2)
P3	3"x3"x1/4" PLATE WASHER	1	(3) (WB-2)	MST46	1	(2) (WB-2)
P4	LTP4	1	(4) (WB-2)	NONE	N/A	N/A
P5	LTP4	1	(4) (WB-2)	LSTA24	1	(1) (WB-2)
P6	LTP4	1	(4) (WB-2)	MST46	1	(2) (WB-2)
P7	LSTA15	1	(5) (WB-2)	NONE	N/A	N/A
P8	HTT4 5/8" A24 THR. ROD	1	(6) (WB-2)	NONE	N/A	N/A
P9	NONE	N/A	N/A	LSTA24	1	(1) (WB-2)
P10	NONE	N/A	N/A	MST46	1	(2) (WB-2)

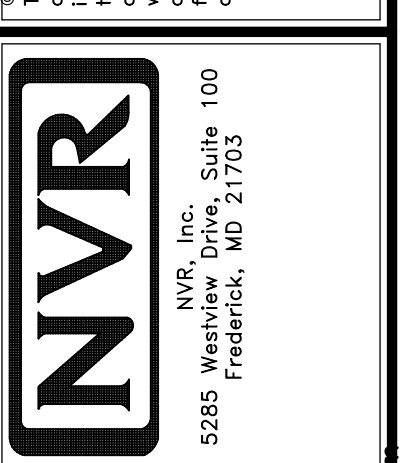
NOTES: THREADED ROD PART INCLUDES (2) NUTS AND (2) WASHERS

As directed by the North Carolina Board of Architecture and Registered Interior Designers, architectural seals are not required and shall not be placed by NVR on these plans and specifications.

REV. NO.	DATE	DESCRIPTION
31	1/12/24	AS5 - 02490303 DETAIL B REVISED STABLE SIZE FROM 1/4" TO 1/8"
32	1/23/24	DLR - 02490764 - REMOVED DETAIL E/WB-2 CORNER DETAIL
33	4/28/24	DLR - 02490764 - PLATE WASHERS CHANGED TO 3"x3" WITH 1/2" THREADED ROD
34	10/25/20	CEL - REVISED WB-2 TO INCLUDE FLOOR TRUSSES
35	10/25/20	CEL - REVISED WB-2 TO INCLUDE FLOOR TRUSSES
36	4/7/21	ARS - REV. DET. C PONY WALL NOTED
37	6/29/21	ARS - REVISED WB-2 TO REMOVE USE OF FLAT BLOCKING
38	12/19/22	DLR - 02490764 - ADDED PERIF. WALL BRACING DETL. AND ALT. FASTEN. TO HWB-2
39	4/9/23	DLR - 02490764 - REVISED CONNECTOR CHART, REVISED PART NUMBERS



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SET NO. 1
VERSION 1
DRAWN BY ELH
DATE: 4/8/14
OPTION

MODEL: WALL BRACING DETAILS
DRAWING TITLE: PRESCRIPTIVE WALL BRACING DESIGN
SHEET NO. WB-2
OPTION DESCRIPTION