CLIENT: Adi & Marie Bhat

BUILDER: Javi LLC
ADDRESS: 3005 Sandfiddler Rd., Virginia Beach, VA

SCOPE OF WORK
New construction of a three story, residential custom home. Requirements for construction include a monolithic slab on grade, siding exterior, 30 year architectural shingles and conventional floor, wall and roof framing. There will be front and rear porches.

DESIGN REQUIREMENTS
1. Foundation Type: Monolithic slab on grade
2. Exterior Wall Framing: 2x6
3. Interior Wall Framing: 2x4 (and 2x6 for plumbing drains, as needed).
4. Wall Height
   a. b. 1st Level: 8'
   b. 2nd Level: 9'
   c. 3rd Level: 10'

TABLE 3 HOUSE SPECIFICATIONS	
First Floor Living	2,169 ft2
Second Floor Living	1,827 ft2
Third Floor Living	2,015 ft2
Deck (2nd Floor)	958 ft2
Deck (3rd Floor)	697 ft2
TOTAL AREA	7,666 ft2/

HOA/POA ARCHITECTURAL DESIGN NOTE
Some of the architectural design features associated with these plans are governed by Home/Property Owners Association (HOA/POA) Covenants, which may not be accurately depicted in the these drawings. The Homeowner and/or Builder shall provide and attach applicable HOA/POA design requirements as a supplemental document to include in the Design Package for approval and construction. It is noted that the Design Package typically consists of house plans, wall bracing calculations, EWP specs, surveys, etc.

Link to 3D Computer Model
https://3d-viewer.chiefarchitect.com/go?share=405920315214311
(This 3D model depicts a simulated computer rendition of the home based on structural floor, elevation and roof parameters. See Material Note 12.A.)

TABLE 1 CLIMATIC AND GEOGRAPHICAL DESIGN CRITERIA	
Ground Snow Load	15 psf
Wind Design - Speed	93 mph (Nominal)
Wind Design - Speed	120 mph (Ultimate)
Wind Exposure Category	B
Seismic Design Category	A
Weathering Area	Moderate
Climate Zone (VA only)	4A
Frost Line Depth	4 inches
Termite Area	Moderate to Heavy
Winter Design Temperature	22 degrees
Decay Area	Slight to moderate
Ice Barrier Underlayment Required	No
Flood Hazards	Refer to zoning permit
Air Freezing Index - Table R403.3(2)	1500 or less
Mean Annual Temperature	TBD by jurisdiction
Soil - Presumptive Load Bearing Pressure	1,500 ps
Soil - Material Classification	ML, CL, CH, MH
Design Pressures (Doors & Windows)	25 psf / -25 psf
Energy Performance (Doors & Windows)	"U Factor: 0.35 or less
Solar Heat Gain:	0.40"

TABLE 2 DESIGN LOADS (psf) [R301.4, R301.5]	
Floors (sleeping areas)	30 Live, 10 or 20 Dead
Floors (living areas)	40 Live, 10 or 20 Dead
Ceilings (uninhabitable attics w/o storage)	10 Live, 5 Dead
Ceilings (uninhabitable w/ limited storage)	20 Live, 10 Dead
Ceilings (habitable attics)	30 Live, 10 or 20 Dead
Roofs (ceiling not attached to rafters)	20 Live, 10 or 20 Dead
Roofs (ceiling attached to rafters)	20 Live, 10 or 20 Dead
Decks	40 Live, 10 Dead

NOTE: The lumber spans designated on these plans utilize minimum dead load, unless specified otherwise.

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Drawing comply with the 2018 Virginia Uniform Statewide Building Code (USBC).

Authority: 2018 Virginia Building and Fire Code Related Laws Package § 54.1-402.

CONSTRUCTION NOTES

1. GENERAL. The accompanying drawings are intended to provide design requirements to acquire a building permit and facilitate construction of a new home or remodel project. Conceptual layout of major equipment, cabinets and appliances (e.g., kitchens, bathrooms, fireplaces, HVAC equipment, hot water heaters, etc) are depicted for the purpose of assisting the Homeowner and Builder coordinate material selection and installation services.

2. PERMITS such as electrical, mechanical, gas and plumbing and associated schematics shall be provided by an appropriately licensed contractor.

A. MECHANICAL.
1. Ventilation - Bathroom and Mechanical ventilation is required in accordance with the IRC, Sections R303 [R303.3 Bathrooms, R303.4 Mechanical Ventilation, M1505]
2. Prefabricated fireplaces (if installed). Builder to construct fireplace, hearth and mantel in accordance with manufactures specifications.

B. PLUMBING. Toilet, Bath and Shower fixtures shall be spaced in accordance with Figure R307.1. See GENERAL SPECS (2), Sheet H-2.

C. ELECTRICAL. Smoke and Carbon Monoxide alarms shall be installed per R314 and R315 respectfully. The requirements (e.g., location, power source, interconnection, etc.) shall be included in the electrical permit. The following information is provided for informational purposes only.

1. Smoke Alarms shall be installed in the following locations:
   a. In each sleeping room.
   b. Outside each separate sleeping area in the immediate vicinity of the bedrooms.
   c. On each additional story of the dwelling, including basements and habitable attics and not including crawl spaces and uninhabitable attics. In dwellings or dwelling units with split levels and without an intervening door between the adjacent levels, a smoke alarm installed on the upper level shall suffice for the adjacent lower level provided that the lower level is less than one full story below the upper level.
   d. Smoke alarms shall be installed not less than 3 feet horizontally from the door or opening of a bathroom that contains a bathtub or shower.
   e. Ionization smoke alarms shall not be installed less than 20' horizontally from a permanently installed cooking appliance.
   f. Ionization smoke alarms with an alarm-silencing switch shall not be installed less than 10' horizontally from a permanently installed cooking appliance.
   g. Photoelectric smoke alarms shall not be installed less than 6' horizontally from a permanently installed cooking appliance.

2. Carbon Monoxide alarms 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.

3. Water Heaters shall be installed per manufacturer's instructions and the requirements of the VA Residential Code. "Fuel-fired" water heaters shall not be installed in a room used as a storage closet. Water heaters located in a bedroom or bathroom shall be installed in a sealed enclosure so that combustion air will not be taken from the living space. Installation of direct-vent water heaters within an enclosure is not required. [M2005.2]

3. **MATERIAL SPECIFICATIONS**

A. MATERIALS.
1. See "PERSPECTIVE & ELEVATION VIEWS" on Sheets B-2 for a description of exterior facades (materials) used in the design of this house.
2. The Builder and Homeowner shall agree on final selection and fabrication of all non-structural items such as brick and stone work, trim, molding, millwork, guard rails, cabinetry, appliances, electrical & HVAC equipment, screened porch systems/framing, paint colors, wall texture, vents, etc. See the MATERIALS & SERVICES listings for additional information.

B. ROOF COVERING: 30 year Architectural Asphalt or Fiberglass Shingles. Where roof covering is any material other than asphalt shingles, alternate underlayment instructions shall be provided per Note 6.K, Sheet A-3.

3. **MATERIAL SPECIFICATIONS (continued)**

C. LUMBER

1. General framing lumber used for walls, floors, ceilings and rafters shall be Southern Pine (SP) #2 or equal, unless specified otherwise. Standard lengths are normally limited to 20'. Longer lengths ≤ 24' of sawn lumber, in higher grade such as Spruce-Pine-Fir (SPF) #2, are manufactured. Laminated Finger Joined Lumber (LFL) in lengths > 24', SPF #2, are also manufactured. Certification of LFL lumber for the intended application is required (e.g., vertical use only; floor, roof, wall structural members; etc.) Verify material availability and certification prior to construction.
2. Hip and Valley Rafters exceeding 24' in length shall be procured as Beams (LVLs). See Roof Plan and Beam/Load Point Drawings.
3. Cantilever spans are based on No.1 or better southern pine; or No. 2 Grade lumber of Douglas fir-larch, hem-fir, and spruce-pine-fir for repetitive (three or more) members.
4. Girder and header spans for interior and exterior bearing walls are based on the minimum design properties for No. 2 grade lumber of Douglas fir-larch, hem-fir, Southern pine, and spruce-pine-fir.
5. Girder and header spans for open porches are based on the minimum design properties for No. 2 grade lumber, wet service and incising for refractory species.
6. ENGINEERED WOOD PRODUCTS LUMBER (e.g., LVL Beams, LVL Columns, floor and roof systems), if used, are to be set and braced in accordance with manufacturer's layout. The layout is to specify sizes, span/load data and blocking details.
7. Preservative-treated lumber is required in the following locations [R317.1]:
   a. Wood joists or the bottom of a wood structural floor when closer than 18" or wood girders when closer than 12" to the exposed ground in crawl spaces or unexcavated area located within the periphery of the building foundation.
   b. Wood framing members that rest on concrete or masonry exterior foundation walls and are less than 8" from the exposed ground.
   c. Sills and sleepers on a concrete or masonry slab that is in direct contact with the ground unless separated from such slab by an impervious moisture barrier.
   d. The ends of wood girders entering exterior masonry or concrete walls having clearances of less than 1/2" on tops, sides and ends.
   e. Wood siding, sheathing and wall framing on the exterior of a building having a clearance of less than 6" from the ground or less than 2 inches measured vertically from concrete steps, porch slabs, patio slabs and similar horizontal surfaces exposed to the weather.
   f. Wood structural members supporting moisture-permeable floors or roofs that are exposed to the weather, such as concrete or masonry slabs, unless separated from such floors or roofs by an impervious moisture barrier.
   g. Wood furring strips or other wood framing members attached directly to the interior of exterior masonry walls or concrete walls below grade except where an approved vapor retarder is applied between the wall and the furring strips or framing members.
   h. Decks (including deck ledgers), and any wood members that form the structural supports of buildings, balconies, porches when those members are exposed to the weather without adequate protection from a roof, eave, overhang or other covering that would prevent moisture or water accumulation on the surface or at joints between members.

D. SHEATHING & UNDERLAYMENT (i.e., plywood, composite panels and OSB). Products shall be APA rated, Exterior / Exposure 1 category. Minimum thickness values are based on product Type & **Span Rating**. Examples for 16" and 24" OC joist spacing follow.
- Roof & Subfloor Sheathing
  - Subfloor - 7/16" (16"OC, 24/**16** span rating), 3/4" (24" OC, 48/**24** span rating), etc.
  - Roof - 3/8" (16"OC, **16**/0 span rating), 7/16" (24" OC, **24**/16 span rating), etc.
- Roof & Subfloor Underlayment, C-C plugged, Single Floor
  - Subfloor - 5/8" (16 OC span rating), 3/4" (24 oc span rating), etc.
  - Roof - 19/32" (16 OC span rating), 23/32" (24 oc span rating), etc.
- Wall Sheathing - 3/8" (16"OC, 24/0 span rating) or 7/16" (16" or 24"OC, 24/16 span rating)
- [References: FLOOR & ROOF: Table R503.2.1.1(1); WALL: Table R602.3(3); Span Rating - The first number represents the maximum support spacing for a roof application, and the second number indicates a maximum spacing of supports for flooring.]

CONTINUED ON NEXT PAGE

ABBREVIATIONS

CA	Carbon Dioxide Alarm
CMU	Concrete Masonry Unit (cider block)
EWP	Engineered Lumber Products (LVL, I-Joist, Truss, Post, etc.)
Fan	Exhaust Fan
◯ X lbs	Point Load (See EWP Sheets)
PT	Pressure Treated
SA	Smoke Alarm
uso	unless specified otherwise

TABLE R301.7
ALLOWABLE DEFLECTION OF STRUCTURAL MEMBERS[b, c]

STRUCTURAL MEMBER	ALLOWABLE DEFLECTION
Rafters having slopes greater than 3:12 with finished ceiling not attached to rafters	$L/180$
Interior walls and partitions	$H/180$
Floors	$L/360$
Ceilings with brittle finishes (including plaster and stucco)	$L/360$
Ceilings with flexible finishes (including gypsum board)	$L/240$
All other structural members	$L/240$
Exterior walls—wind loads[a] with plaster or stucco finish	$H/360$
Exterior walls—wind loads[a] with other brittle finishes	$H/240$
Exterior walls—wind loads[a] with flexible finishes	$H/120$[e]
Lintels supporting masonry veneer walls[d]	$L/600$

Note: L = span length, H = span height.

CAUTIONARY DESIGN & CONSTRUCTION INFORMATION

1 Code Compliance and Responsibilities - It is the intent of these drawings to provide sufficient information to the experienced builder to construct the project shown. It is the builders responsibility to review and verify the these drawings comply with all state, local and other regulatory agency requirements prior to performing any work. Any missing or conflicting information shall be brought to the attention of the designer for the purpose of revising the drawings.

2 ZONING and HOA Compliance and Responsibilities - Prior to developing these plans, the homeowner/ builder agreed to verify the proposed design complied with applicable zoning requirements such as property easements, setbacks, lot coverage; Chesapeake Bay Preservation Act and applicable RPA boundaries, coastal construction regulations, FEMA's 50% Rule; HOA covenants, or any other restrictions. A survey of the property was also recommended.

3 Stop Work & Problem Resolution - If any errors, omissions or discrepancies are discovered on these plans that have an adverse affect on the intended work, that portion of the work shall be discontinued until a solution is developed by the designer, building inspector and/or the general contractor. The solution must conform to applicable codes, with the concurrence of the home owner.

4 For Remodels - The accompanying construction drawings were developed based on site visits and physical access to the "structural elements" of the home or building, prior to construction. "Structural elements" include, but are not limited to basements; footings; foundations; bearing walls; floor, wall and ceiling cavities; and attic spaces. Where such access is not provided, the design assumes the existing structure to be constructed as shown in these plans, using conventional stick framing techniques (e.g., no beams or trusses), and conforms to code. It is the responsibility of the homeowner and/or builder to make such areas accessible during the design inspection phase. Invasive removal of non-structural elements such as gypsum wall & ceiling board, flooring, plywood should be performed by the homeowner and/or contractor, as deemed necessary, prior to acceptance of completed construction drawings. Adhere to the "Stop Work & Problem Resolution" actions if non-conformities are found. "Supplemental Design Services" may be required to remedy any new and/or unforeseen problems.

5 Design Basis & Liability - The accompanying construction drawings were developed in accordance with the International Residential Code (IRC) and the Virginia Uniform Statewide Building Code (VA-USBC). Changes to these drawings should only be performed by a qualified architect, designer, contractor or structural engineer. While every attempt has been made in the preparation of this plan to avoid errors, omissions, and mistakes, the designer can not guarantee against human error. The contractor and/or client shall verify all conditions, dimensions, details and specifications and be responsible for the same. The designer will not be liable for human error after construction begins.

6 Supplemental Design Services - After these plans are approved by the local Building Inspector, the designer (House Plans by Design, LLC) will provide technical assistance (Fee For Service), upon request. Such services include developing additional designs to support change orders, resolution of code compliance issues, as-built conditions, workmanship concerns, etc.

DRAWINGS PROVIDED BY:
House Plans by Design, LLC
Designer: Neil Wilson, Engineer
Phone: 757.621.7832
100 Windy Point Dr
Suffolk, Va 23435
www.HousePlansbyDesign.com

PROJECT OVERVIEW & CONSTRUCTION NOTES

DATE:
10/16/2022

SHEET:
A-1

3. **MATERIAL SPECIFICATIONS (continued)**

E. INSULATION. Minimum insulation thicknesses are as follows:
- Insulation by Component [TABLE N1102.1.2 (R402.1.2)]
  - Ceilings: R-49
  - Walls: R-15
  - Wood Floors: R-19 (framed)
  - Concrete Slab floors: R-10, 24" width
- Access Hatches & Doors [N1102.2.4 (R402.2.4)]
  - Access doors from conditioned spaces to unconditioned spaces (e.g., attics and crawl spaces) shall be weather-stripped and insulated in accordance with the following values:
    1. Hinged vertical doors shall have a minimum overall R-5 insulation value;
    2. Hatches and scuttle hole covers shall be insulated to a level equivalent to the insulation on the surrounding surfaces; and
    3. Pull down stairs shall have a minimum of 75 percent of the panel area having R-5 rigid insulation. Access shall be provided to all equipment that prevents damaging or compressing the insulation. A wood framed or equivalent baffle or retainer is required to be provided when loose fill insulation is installed, the purpose of which is to prevent the loose fill insulation from spilling into the living space when the attic access is opened, and to provide a permanent means of maintaining the installed Rvalue of the loose fill insulation.
- AIR BARRIER AND INSULATION INSTALLATION - Component insulation requirements are given per TABLE N1102.4.1.1 (R402.4.1.1)

F. FLASHING & SEALS. Use ZIP System (or equal). Go to https://www.huberwood.com/zip-system

4. FOUNDATION - MONOLITHIC SLAB DESIGN

A. The homeowner and builder are responsible for verifying the building site possesses suitable soil and bearing pressure (1,500 psf min). This survey should be completed by a qualified geotechnical or civil engineer prior to construction. [TABLE R401.4.1]

B. DIMENSIONS. All dimensions are to the face of masonry, unless otherwise noted. For dimensions not shown, see FLOOR PLANs.

C. MATERIALS. Minimum compressive strength of all concrete is 3,000 psi (strength at 28 days). [TABLE R402.2]

D. BLOCK & FLOOR HEIGHT.
1. Deleted. (CMU blocks are not required for this design.)
2. Porch and Deck floors are typically located ~ 4" below the finished floor of the primary structure.

E. FOOTINGS [R403]
1. Footings shall be supported on undisturbed natural soils or engineered fill.
2. Exterior footings shall be placed not less than 12 inches below the undisturbed ground surface.
3. Footings are designed and constructed per the Footing Design Table. [TABLE R403.1]

F. CONCRETE FLOORS (e.g., Slab on Ground, Garage Floors, Porches) [R506]
1. The area within the foundation walls shall have all vegetation, top soil and foreign material removed.
2. Fill material shall be free of vegetation and foreign material and shall be natural nonorganic material that is not susceptible to swelling when exposed to moisture. The fill shall be compacted to assure uniform support of the slab, and except where approved, the fill depth shall not exceed 24 inches for clean sand or gravel and 8 inches for earth. Where more than 6" compacted fill is required, fill shall be added in 6" layers with each layer compacted with a plate compactor. Exception: Material other than natural material may be used as fill material when accompanied by a certification from an RDP and approved by the building official. Some pre-approved fill materials include clean sand with no more than 8% fines, VDOT 57 Stone, or VDOT #21A/21B "Crusher Run".
3. A 4" thick base course of compacted clean graded sand, gravel or crushed stone passing a 2-inch sieve shall be placed on the prepared subgrade, when the slab is below grade.
4. A 6-mil polyethylene vapor retarder with joints lapped not less than 6 inches shall be placed between the concrete floor slab and the base course (or the prepared subgrade where no base course exists).
   Exceptions: The vapor retarder is not required for the following:
   1. Unheated garages, utility buildings and other accessory structures.
   2. Unheated storage rooms having an area of less than 70 square feet and carports.
   3. Driveways, walks, patios and other flatwork not likely to be enclosed and heated at a later date.
5. Concrete slab floors shall be 3 1/2" thick (minimum) and shall be sloped (~1/8" per foot) to facilitate the movement of liquids to a drain or toward the main vehicle entry doorway. [R309.1]
6. Welded-wire-fabric (W.W.F. 6x6-W2.1xW2.1) or equal shall be used to reinforce concrete.
7. Control joints (CJs) are recommended for large concrete slabs. Space joints (in feet) no more than 2-3 times the slab thickness (in inches). A typical 4" slab should have control joints spaced 8-12 feet apart. Cut joints 25% of the depth of the slab.
8. Expansion Joints and Bond Breakers shall be installed around the perimeter of the foundation wall. See Detail.

G. MASONRY
1. SECTION R404, FOUNDATION AND RETAINING WALLS
   a. Table FDN-1 provides concrete and clay masonry foundation walls design and constriction criteria. [Tables R404.1.1(1-4), and applicable provisions of Section R606. [R404.1.2.1]]
   b. Pier and curtain wall foundations are designed and constructed to support light-frame construction, not more than two stories in height, in accordance with the requirements of R404.1.5.3. [R404.1.5.3]
   c. Isolated masonry piers are designed and constructed in accordance with section R404.1.9 and R606. Hollow masonry piers shall have a minimum nominal thickness of 8", with a nominal height not exceeding 4X the nominal thickness and a nominal length not exceeding 3X the nominal thickness. The nominal height of hollow masonry units that are solidly filled with concrete or grout, shall not exceed 10X the nominal thickness. Footings for isolated masonry piers shall be sized in accordance with Section R403.1.1. [R404.1.9]

4. FOUNDATION - MONOLITHIC SLAB DESIGN (continued)

2. SECTION R606, GENERAL MASONRY CONSTRUCTION
   a. The minimum thickness of masonry bearing walls more than one story high shall be 8". Solid masonry walls of one-story dwellings and garages shall be not less than 6" in thickness where not greater than 9' in height, provided that where gable construction is used, an additional 6' is permitted to the peak of the gable. [R606.4.1]
   a. Piers. The unsupported height of (filled) masonry piers shall not exceed 10X their least dimension... Unfilled hollow piers shall not exceed four times their least dimension... [R606.7]
   b. Pier cap. Hollow piers shall be capped with 4" of solid masonry or concrete, a masonry cap block, or shall have cavities of the top course filled with concrete or grout. [R606.7.1]
   c. Allowable compressive stresses in masonry shall not exceed the values prescribed in Table R606.9. [R606.9]

H. EXTERIOR COVERING [R703]
1. Flashing shall be located beneath the first course of masonry above finished ground level above the foundation wall or slab and at other points of support, including structural floors, shelf angles and lintels where masonry veneers are designed in accordance with R703.8. See Section R703.4 for additional requirements. [R703.8.5]
2. Weep Holes - NOT APPLICABLE TO SLAB FOUNDATIONS

I. STRUCTURAL
1. Not used.
2. Wood sill (sole) plates shall be not less than 2-inch by 4-inch nominal lumber and are required on all exterior exterior masonry or concrete bearing walls, unless specified otherwise. Exterior decks and wood products that rest on concrete or masonry shall be No 2 grade or better lumber, preservative treated. [R317.1 & R404.3]
3. Foundation anchorage. Wood sole plates at all exterior walls on monolithic slabs, wood sole plates of braced wall panels at building interiors on monolithic slabs and all wood sill plates shall be anchored to the foundation with 1/2" diameter anchor bolts spaced 6' on center (max). Equivalent anchors or anchor straps are authorized. Bolts shall extend a minimum of 7" into concrete or grouted cells of concrete masonry units. The bolts shall be located in the middle third of the width of the plate. A nut and washer shall be tightened on each anchor bolt. There shall be a minimum of two bolts per plate section with one bolt located not more than 12" or less than seven bolt diameters from each end of the plate section. Interior bearing wall sole plates on monolithic slab foundation that are not part of a braced wall panel shall be positively anchored with approved fasteners. Sill plates and sole plates shall be protected against decay and termites where required by Sections R317 and R318. [R403.1.6]. NOTE: Alternate equivalent anchors my be used (e.g., "Simpson Strong-Tie" Sill Plate anchors, as shown on the WALL BRACING (1) sheet.)

   Exceptions:
   a. Walls 24" total length or shorter connecting offset braced wall panels shall be anchored to the foundation with a minimum of one anchor bolt located in the center third of the plate section and shall be attached to adjacent braced wall panels at corners per approved nailing pattern (Item 9 of Table R602.3(1)).
   b. Connection of walls 12" total length or shorter connecting offset braced wall panels to the foundation without anchor bolts shall be permitted. The wall shall be attached to adjacent braced wall panels at corners per approved nailing pattern (Item 9 of Table R602.3(1)).

J. UNDER FLOOR CRAWL SPACE (VENTILATED) [R408] - NOT APPLICABLE TO SLAB FOUNDATIONS

K. FLOOD VENTS - NOT APPLICABLE TO SLAB FOUNDATIONS

L. TERMITE CONTROL. One or more of the following methods are required:1. Chemical termiticide treatment, 2. Termite baiting system, 3. Pressure-preservative-treated wood, 4. Naturally durable termite-resistant wood 5. Physical barriers as provided in Section R318.3 and used in locations as specified in Section R317.1. [Ref: R318]

5.1 **FRAMING - FLOORS**

A. Lumber sizes, spacing and spans denoted in Table JS-1, comply with following Tables:
   a. Floor Joist (Sleeping Areas) . . . . . R502.3.1(1)
   b. Floor Joist (Living Areas) . . . . . R502.3.1(2)
   c. Girders & Headers (Exterior Bearing Walls) . See Table R602.7(1), Sheet K-1
   d. Girders & Headers (Interior Bearing Walls) . See Table R602.7(2), Sheet K-1
   e. Girders & Headers (Open Porches) . . . . . See Table R602.7(3), Sheet K-2
   f. Ceiling Joist (Attics w/o storage) . . . . . R802.5(1)
   g. Ceiling Joist (Attics w/ limited storage) . . . R802.5(2)

B. Headers in non-load-bearing walls are not required in interior or exterior nonbearing walls. A single flat 2" x 4" member shall be permitted to be used as a header in interior or exterior nonbearing walls for openings up to 8' in width if the vertical distance to the parallel nailing surface above is not more than 24". For such nonbearing headers, cripples or blocking are not required above the header. [R602.7.4]

C. Joist under Bearing Partitions

   a. Double floor joist shall be located under parallel bearing wall partitions. Double joists that are separated to permit the installation of piping or vents shall be full depth solid blocked with lumber not less than 2" thickness spaced not more than 4' on center. [R502.4]
   b. Bearing wall partitions perpendicular to joists shall not be offset from supporting girders, walls or partitions more than the joist depth. [R502.4]
   c. Double floor joist shall be located under Bearings or Point Loads (PLs) and shall bear directly on supporting girders and the foundation below. Additional blocking may be required to achieve the effective bearing area for LPs, as given in Table B-1. [NW]

D. Bearing. The ends of each joist, beam or girder shall have not less than 1 1/2 inches of bearing on wood or metal, have not less than 3 inches of bearing on masonry or concrete or be supported by approved joist hangers. Alternatively, the ends of joists shall be supported on a 1-inch by 4-inch ribbon strip and shall be nailed to the adjacent stud. The bearing on masonry or concrete shall be direct, or a sill plate of 2-inch-minimum nominal thickness shall be provided under the joist, beam or girder. The sill plate shall provide a minimum nominal bearing area of 48 square inches. [R502.6]

E. Fireblocking shall be provided to cut off both vertical and horizontal concealed draft openings and to form an effective fire barrier between stories, and between a top story and the roof space. R302.11 provides specific locations. [R602.8]

5.2 **FRAMING - WALLS**

A. Exterior wall sizes shall be as specified per the applicable plan. Interior walls are typically 2x4, unless specified otherwise. Stud spacing is 16"OC, unless specified otherwise.

BUILDER/CLIENT NOTE

Walls used to route services such as plumbing or HVAC, may be increased in size during construction, or shall otherwise be brought to the attention of the designer prior to submitting plans for approval to the Building Official.

B. Maximum Wood Stud Heights [Tables R602.3(5) and R602.3(6)]
- Bearing Walls
  - 10’ max height (2x4 and 2x6). Applies to supporting a roof and two floors. Maximum roof span is 32' for 2x4 studs if a habitable attic is being supported.
  - 12’ max height (2x6). Applies to supporting a roof and one floor. Roof assembly shall not contain a habitable attic. Maximum roof/floor span width is 24'.
  - Bearing wall studs shall be spaced 16" OC (max) and shall be sheathed on not less than one side or bridging shall be installed not greater than 4 feet apart measured vertically from either end of the stud. [Tables R602.3(5) and R602.36]
- Non-Bearing Walls - 14’ max height (2x4), 20’ max height (2x6)

DESIGNER NOTES

1. Wood stud heights are based on the vertical distance between where walls are laterally supported, perpendicular to the plane of the wall. (i.e., location of upper, lower and/or intermediate floor and ceiling planes).
2. Story Height limitations apply per R301.3]

C. Girders & Headers comply with following Tables:
   a. Girders & Headers (Exterior Bearing Walls) . See Table R602.7(1), Sheet K-1
   b. Girders & Headers (Interior Bearing Walls) . See Table R602.7(2), Sheet K-1
   c. Girders & Headers (Open Porches) . . . . . See Table R602.7(3), Sheet K-1

D. Girders and headers in load bearing walls shall be multi-ply and laterally braced, unless specified otherwise. [NW/R602.7]

E. Headers in non-load-bearing walls are not required in interior or exterior nonbearing walls. A single flat 2" x 4" member shall be permitted to be used as a header in interior or exterior nonbearing walls for openings up to 8' in width if the vertical distance to the parallel nailing surface above is not more than 24". For such nonbearing headers, cripples or blocking are not required above the header. [R602.7.4]

F. DOORS are typically set 6" (min) from wall corners, unless specified otherwise.

G. WINDOWS shall typically be centered on walls as follows, unless specified otherwise. Center windows on the "exterior" wall on the front of the structure. All other windows shall be centered on the "interior" wall.

H. FIREBLOCKING shall be provided to cut off both vertical and horizontal concealed draft openings and to form an effective fire barrier between stories, and between a top story and the roof space. R302.11 provides specific locations. [R602.8]

I. ATTIC ACCESS. Attic areas that have a vertical height of 30" or greater over an area of not less than 30 square feet shall have an attic access opening. The vertical height shall be measured from the top of the ceiling framing members to the underside of the roof framing members. The rough-framed opening shall be not less than 22" by 30" and shall be located in a hallway or other readily accessible location. Where located in a wall, the opening shall be not less than 22" wide by 30" high. Where the access is located in a ceiling, minimum unobstructed headroom in the attic space shall be 30" at some point above the access measured vertically from the bottom of ceiling framing members. See M1305.1.3 for access requirements where mechanical equipment is located in attics. [R807.1]

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HOUSE PLANS BY DESIGN, LLC

Drawing comply with the 2018 Virginia Uniform Statewide Building Code (USBC).

Authority: 2018 Virginia Building and Fire Code Related Laws Package § 54.1-402.

CONSTRUCTION NOTES (MATL, FDN, FRAMING)

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DATE:

10/16/2022

SHEET:

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5.2 **FRAMING - WALLS (continued)**

J. ATTIC, HABITABLE [R202, R325.6]. A finished or unfinished area, not considered a story, complying with all of the following requirements:

1. The occupiable floor area is not less than 70 square feet, in accordance with Section R304.
2. The occupiable floor area has a ceiling height in accordance with Section R305.
3. The occupiable space is enclosed by the roof assembly above, knee walls (if applicable) on the sides and the floor-ceiling assembly below.
4. The floor of the occupiable space shall not extend beyond the exterior walls of the floor below. This condition affect story height only. [R325.6]

NOTES

- Attics that meet the criteria of 1-3 above MAY be considered Habitable Attics, and is applicable to finished and unfinished spaces. If designated as such, habitable attics require a vertical access, emergency escape and rescue opening, and smoke alarms. Vertical access can be a fixed internal stair, ramp, or exterior stair. A fixed stair or ramp is required on an attic that meets the habitable attic criteria unless a door directly to the exterior is installed in the space. [R202, R305.1, R310.1, R311.1, R311.4, 314.3]
- A habitable attic assembly supported by 2 × 4 studs is limited to a roof span of 32 feet. Where the roof span exceeds 32 feet, the wall studs shall be increased to 2 × 6 or the studs shall be designed in accordance with accepted engineering practice. [Table R602.3(5), Note c]

K. FIRE / OPENING PROTECTION. Openings between the garage and residence shall be equipped with solid wood doors not less than 1 3/8 inches in thickness, solid or honeycomb core steel doors not less than 13/8 inches thick, or 20-minute fire-rated doors. [R302.5.1]

L. PROTECTION FROM IMPACT. Appliances shall not be installed in a location subject to vehicle damage except where protected by approved barriers. [M1307.3.1]

M. DWELLING - GARAGE FIRE SEPARATION. The garage shall be separated as follows [TABLE R302.6]:

1. From the residence and attics: Not less than 1/2-inch gypsum board or equivalent applied to the garage side,
2. From habitable rooms above the garage: Not less than 5/8-inch Type X gypsum board or equivalent,
3. Structure(s) supporting floor/ceiling assemblies: Not less than 1/2-inch gypsum board or equivalent.

N. UNDER STAIR PROTECTION. Under-stair protection. Enclosed space under stairs that is accessed by a door or access panel shall have walls, under-stair surface and any soffits protected on the enclosed side with 1/2-inch gypsum board. [R302.7]

O. BATHROOMS. Exhaust fans shall be provided in bathrooms without operable windows of not less than 3 square feet. [R303.3]

P. BATHTUB & SHOWER SPACES. Bathtub and shower floors and walls above bathtubs with installed shower heads and in shower compartments shall be finished with non-absorbent surface. The surfaces shall extend to a height of not less than 6' above the floor. [R307.2]

Q. FIRE EXTINGUISHERS. A fire extinguisher having a rating of 2-A:10-B:C or an approved equivalent type of fire extinguisher shall be installed in the kitchen area. [R331]

6. **ROOF CONSTRUCTION**

A. Rafter sizes, spacing and spans denoted in Table RFT-1, comply with following Tables:

a. Rafter Spans (Roof LL=20 psf, ceilings not attached to rafters, L/D=180) . . . . Table R802.4.1(1)
b. Rafter Spans (Roof LL=20 psf, ceilings attached to rafters, L/D=240) . . . . . Table R802.4.1(2)

B Ridge boards used to connect opposing rafters shall be not less than 1" nominal thickness and not less in depth than the cut end of the rafter. Where ceiling joist or rafter ties do not provide a continuous tie across the structure, a ridge beam shall be provided and supported on each end by a wall or girder. [R802.3]

C. Hip and valley rafters shall be not less than 2" nominal in thickness and not less in depth than the cut end of the rafter. Hip and valley rafters shall be supported at the ridge by a brace to a bearing partition or be designed to carry and distribute the specific load at that point. Strap ends of Hip and Valley Rafters using Simpson Tie CS 16 strap (or equivalent), 52" long. [R802.4.3]

D. Where the roof pitch is less than 3:12; structural members that support rafters, such as ridges, hips and valleys, shall be designed as beams; and bearing shall be provided for rafters per Note 7.E below. [Ref: R802.4.4]

E. Bearings. The ends of each rafter or ceiling joist shall have not less than 1 1/2"of bearing on wood or metal and not less than 3 inches on masonry or concrete. The bearing on masonry or concrete shall be direct, or a sill plate of 2" minimum nominal thickness shall be provided under the rafter or ceiling joist. The sill plate shall provide a minimum nominal bearing area of 48 square inches. [R802.6]

F. Purlins. Installation of purlins to reduce the span of rafters is permitted as shown in Figure R802.4.5. Purlins shall be sized not less than the required size of the rafters that they support. Purlins shall be continuous and shall be supported by 2" x 4" braces installed to bearing walls at a slope not less than 45 degrees from the horizontal. The braces shall be spaced not more than 4' on center and the unbraced length of braces shall not exceed 8'. [Ref: R802.4.5]

G. Ceiling joist and rafter connections. [R802.5.2]

(1) Where ceiling joists run parallel to rafters: Connect rafters at the top wall plate per Table R802.5.2 (Heel Joist Connection).
(2) Where ceiling joists are not connected to the rafters at the top wall plate: Install ceiling joist (i.e. rafter ties) in the bottom third of the rafter height per Figure R802.4.5 and Table R802.5.2. Where the ceiling joists are installed above the bottom third of the rafter height, the ridge shall be designed as a beam.
(3) Where ceiling joists do not run parallel to rafters: Connect ceiling joists to top plates in accordance with Table R602.3(1) (Fastening Schedule). Each rafter shall be tied across the structure with a rafter tie. Install rafter ties directly on top of and perpendicular to ceiling joist. In lieu of rafters ties, a 2" x 4" kicker (i.e., purlin) connected to the ceiling diaphragm with nails equivalent in capacity to Table R802.5.2 is permitted.

NOTE: Tables R602.3(1) and R802.5.2 are located on the "General Specs (1)" sheet.

6. **ROOF CONSTRUCTION (continued)**

H. Uplift Connectors. Braced wall panels located at exterior walls that support roof rafters or trusses (including stories below top story) shall have the framing members connected using approved connectors (e.g., Simpson Strong-Tie H3 Hurricane Tie or equal). [R602.3.5 & R802.11.1.2]

I. Either Ridge Straps or Collar Ties are required. Connect ridge straps or collar ties per Table R602.3(1). Ridge straps are 1 1/4" × 20 gage strap. Collar ties shall be not less than 1" by 4" nominal, spaced not more than 4 feet on center and are required to connect opposing rafters in the upper third of the attic space. [R802.4.6]

J. Roof ventilation shall be per R806.2. The following calculations apply:

1) Net roof area requiring ventilation= 820 SF (Lower Level) & 2,000 SF (Upper Level).

2) **Net Free Ventilation Area = 2.7 SF** (Lower Level) **& 6.7 SF** (Upper Level)**.** The builder shall provide roof ventilation conforming to this specification.

(Design Note: The minimum net free area of ventilation is calculated using the 1/300 option. This option requires at least 40 percent and not more than 50 percent of the required ventilating area is provided by ventilators located in the upper portion of the attic or rafter space. Upper ventilators shall be located no more than 3 feet below the ridge or highest point of the space, measured vertically. The balance of the required ventilation provided shall be located in the bottom one-third of the attic space. Where the location of wall or roof framing members conflicts with the installation of upper ventilators, installation more than 3 feet below the ridge or highest point of the space shall be permitted. [R806.2])

K. Roof Covering. **NOTE:** Where the roof covering is anything other than **asphalt (fiberglass) shingles** or **metal panels**, STOP WORK and consult the designer for alternate underlayment requirements if not already provided in the plans.

(1) Underlayment for Asphalt (Fiberglass) Roof Coverings (Ref: R905.2)

- For roof slopes from 2:12, up to 4:12, underlayment shall be two layers applied in the following manner: Apply a 19-inch strip of underlayment felt parallel to and starting at the eaves. Starting at the eave, apply 36-inch-wide sheets of underlayment, overlapping successive sheets 19 inches. Distortions in the underlayment shall not interfere with the ability of the shingles to seal.
- For roof slopes of 4:12 or greater, underlayment shall be one layer applied in the following manner: Underlayment shall be applied shingle fashion, parallel to and starting from the eave and lapped 2 inches, Distortions in the underlayment shall not interfere with the ability of the shingles to seal. End laps shall be 4 inches and shall be offset by 6 feet.

(2) Underlayment for Metal Panels (Ref: R905.10)

- The minimum slope for lapped, non-soldered-seam metal roofs without applied lap sealant shall be 3:12.
- The minimum slope for lapped, non-soldered-seam metal roofs with applied lap sealant shall be 1/2: 12. Lap sealants shall be applied in accordance with the approved manufacturer's installation instructions.
- The minimum slope for standing-seam roof systems shall be 1/4:12.
- Install metal panels in accordance with the manufacturer's installation instructions.

7. **DOORS and WINDOWS**

A. PLANNING GUIDANCE. Doors and Windows are long lead and high monetary value items. The following requirements, information and notices shall be observed.

GENERAL NOTICE

The numbering scheme used by the Door & Window schedules (Tables 4 & 5) are computer generated and therefore may not be in sequential order. As such, some numbers may appear to be missing.

NOTICE TO THE MATERIALS PROVIDER

- The **Materials Provider SHALL** verify **Egress** and **Tempering** requirements.
- The **Materials Provider SHALL** provide the manufacturer's **rough opening specifications**.

NOTICE TO THE HOMEOWNER

The **Homeowner SHALL** verify door **selections, sizes, mulled units, and locations** match those given in **Tables 4 and 5 and applicable floor plans**.

General Information

Common door widths: 18", 20", 24", 28", 30", 32", 36". Heights 6'-8" & 8'.

- Measurements are given as width x height. Units can be expressed in inches or feet-inches. (e.g., a 30"x40" window is also referred to as a 2634.)
- Typical sizes of windows meeting egress requirements per Note 3.B below. Note that Manufacturer specs will vary.
  - For 5.7 sf openings (Most typical) - Single & double hung (3060); Casement (2050 and 2838); and Slider (4140).
  - For 5.0 sf openings - Single & double hung (2660 & **3050)**; Casement (2438); and Slider (**3050**, 4040 & 5030).

Requirements

- Egress door. Not less than one egress door shall be provided for each dwelling unit. The egress door shall be side-hinged, and shall provide a clear width of not less than 32 inches where measured between the face of the door and the stop, with the door open 90 degrees. The clear height of the door opening shall be not less than 78 inches in height measured from the top of the threshold to the bottom of the stop. Other doors shall not be required to comply with these minimum dimensions. Egress doors shall be readily openable from inside the dwelling without the use of a key or special knowledge or effort. [R311.2]
- Interior Passages (New construction only. See 3.D below) - Doors: 32" min. clear width (34" nominal). Cased Openings: 34" min. clear width. [R332]
- Opening protection. Openings between the garage and residence shall be equipped with solid wood doors not less than 1 3/8 inches thick, solid or honeycomb-core steel doors not less than 1 3/8 inches thick, or 20-minute fire-rated doors. [R302.5.1]
- Bathroom & Water Closet - Windows: 3 sf minimum w/ one-half of which operable, unless artificial light and mechanical ventilation are provided [R303.3].
- Optional ADA compliant doors - 32" minimum clear opening width. (Typically, 34" or 36" nominal sized). Available per Homeowner request only.

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7. **DOORS and WINDOWS** (continued)

Guidance & Recommendations

- Outside Entry doors - A least one **36**". Others are typically 32".
- Bedroom and Bathroom doors - **30**" (24"-36" range.)
- Laundry Room doors - **32**". Standard washers/dryers are 27" wide.
- Kitchen doors - **32**". Standard refrigerators are 29"-36" deep.
- Overhead garage doors - 12"-16" vertical clearance to the ceiling above is required to install hardware.
- Doors are typically set 6" (min) from wall corners, unless specified otherwise.
- Windows shall typically be centered on walls as follows, unless specified otherwise. Center windows on the "exterior" wall on the front of the structure. All other windows shall be centered on the "interior" wall.

B. EMERGENCY ESCAPE AND RESCUE OPENINGS (EGRESS). Emergency escape and rescue opening required. Basements, habitable attics, and every sleeping room designated on the construction documents shall have not less than one operable emergency escape and rescue opening. Where basements contain one or more sleeping rooms, an emergency egress and rescue opening shall be required in each sleeping room. Emergency escape and rescue openings shall open directly into a public way, or to a yard or court that opens to a public way. [R310.1]

- Minimum opening area. Emergency and escape rescue openings shall have a net clear opening of not less than 5.7 square feet. The net clear opening dimensions required by this section shall be obtained by the normal operation of the emergency escape and rescue opening from the inside, including the tilting or removal of the sash as the normal operation. The net clear height opening shall be not less than 24 inches, and the net clear width shall be not less than 20 inches. **Exception: Grade floor or below-grade openings shall have a net clear opening of not less than 5 square feet.** [R310.2.1]
- Grade Floor Openings are a window or other opening located such that the sill height of the opening is not more than 44 inches above or below the finished ground level adjacent to the opening. [R202]
- Window sill height. Where a window is provided as the emergency escape and rescue opening, it shall have a sill height of not more than 44 inches (1118 mm) above the floor; where the sill height is below grade, it shall be provided with a window well. [R310.2.2]

C. WINDOW FALL PROTECTION.

- Window sills. In dwelling units, where the top of the sill of an operable window opening is located less than 18 inches above the finished floor and greater than 72 inches above the finished grade or other surface below on the exterior of the building, the operable window shall "have a window opening control or fall prevention device". [R312.2.1]

D. INTERIOR PASSAGES [R332]

1. This section applies to new dwelling units that have both a kitchen and a living area on the same floor level as the egress door. This section is not applicable to additions, reconstruction, alteration, or repair.
   - Kitchen. One interior passage route from the egress door to the kitchen shall comply with 3.D.2 below.
   - Living area. One interior passage route from the egress door to at least one living area shall comply with 3.D.2 below.
   - Bedroom. Where the dwelling unit has a bedroom on the same floor level as the egress door, one interior passage route from the egress door to at least one bedroom shall comply with 3.D.2 below.
   - Bathroom. Where a dwelling unit has a bathroom on the same floor level as the egress door, and the bathroom contains a water closet, lavatory, and bathtub or shower, one interior passage route from the egress door to at least one bathroom shall comply with 3.D.2 below.
2. Opening widths along the passage routes shall be as follows:
   - Cased openings shall provide a minimum 34-inch clear width.
   - Doors shall be a nominal 34-inch minimum width. Double doors are permitted to be used to meet this requirement.

E. GLAZING (TEMPERED GLASS). Each pane of glazing installed in hazardous locations (as defined in R308.4) shall be provided with a manufacturer's designation specifying who applied the designation, designating the type of glass and the safety glazing standard with which it complies, which is visible in the final installation. [R308.1]

Typical hazardous locations for which glazing requirements apply, follows: [R308.4]

1. Glazing in doors and windows, adjacent to doors, guards and railings, and adjacent to the bottom of stair landings. (e.g., **glazing (in a window) that is less than 18" above the floor**.)
2. Glazing adjacent stairs and ramps - Glazing where the bottom exposed edge of the glazing is less than 36 inches above the plane of the adjacent walking surface of stairways, landings between flights of stairs and ramps.
3. Glazing and wet surfaces - Glazing in walls, enclosures or fences containing or facing hot tubs, spas, whirlpools, saunas, steam rooms, bathtubs, showers and indoor or outdoor swimming pools, if located less than 60 inches measured horizontally, in a straight line, from the water's edge and the bottom exposed edge of the glazing is less than 60 inches measured vertically above any standing or walking surface. This shall apply to single glazing and each pane in multiple glazing.

F. FLASHING. Approved corrosion-resistant flashing shall be installed at exterior window and door openings. "ZIP Flashing System Guidelines" or equivalent are recommended. [R703.4]

G. FIRE-RESISTANT CONSTRUCTION. Openings from a private garage directly into a room used for sleeping purposes shall not be permitted. Other openings between the garage and residence shall be equipped with 20-minute fire-rated doors. [R302.5.1]

HOUSE PLANS BY DESIGN, LLC

Drawing comply with the 2018 Virginia Uniform Statewide Building Code (USBC).

Authority: 2018 Virginia Building and Fire Code Related Laws Package § 54.1-402.

CONSTRUCTION NOTES (FRAMING, ROOF, DOORS & WINDOWS)

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8. **DECK CONSTRUCTION** [R507]

A. Design Criteria: 40 psf live, 10 psf dead load

B. Wood materials shall be No. 2 grade or better lumber, preservative-treated. All preservative-treated wood products in contact with the ground shall be labeled for such usage. (See Note 12.C, Sheet A-2.)

C. Footings. Decks shall be supported on concrete footings or other approved structural systems. Deck footings shall be sized to carry the imposed loads from the deck structure to the ground as shown in Figure R507.3. The footing depth shall be in accordance with Section R403.1.4. [R507.3]

D. Deck posts. For single-level wood-framed decks with beams sized in accordance with Table R507.5, deck post size shall be in accordance with Table R507.4. [R507.4]

E. Deck post to deck footing connection. Where posts bear on concrete footings in accordance with Section R403 and Figure R507.3, lateral restraint shall be provided by manufactured connectors or a minimum post embedment of 12 inches in surrounding soils or concrete piers. [R507.4.1]

F. Deck Beams. Maximum allowable spans for wood deck beams shall be in accordance with Table R507.5. Beam plies shall be fastened with two rows of 10d nails minimum at 16 inches on center along each edge. Beams shall be permitted to cantilever at each end up to one-fourth of the allowable beam span. [R507.5]

1. Deck beam bearing. The ends of beams shall have not less than 11/2 inches (38 mm) of bearing on wood or metal and not less than 3 inches (76 mm) of bearing on concrete or masonry for the entire width of the beam. Where multiple-span beams bear on intermediate posts, each ply must have full bearing on the post in accordance with Figures R507.5.1(1) and R507.5.1(2).

2. Deck beam connection to supports. Deck beams shall be attached to supports in a manner capable of transferring vertical loads and resisting horizontal displacement. Deck beam connections to wood posts shall be in accordance with Figures R507.5.1(1) and R507.5.1(2). Manufactured post-to-beam connectors shall be sized for the post and beam sizes. Bolts shall have washers under the head and nut.

G. Deck joists. Maximum allowable spans for wood deck joists shall be in accordance with Table R507.6. The maximum joist spacing shall be limited by the decking materials. The maximum joist cantilever shall be limited to one-fourth of the joist span or the maximum cantilever length specified in Table R507.6, whichever is less. [R507.6]

H. Decking. Maximum allowable spacing for joists supporting decking shall be in accordance with Table R507.7. Wood decking shall be attached to each supporting member with not less than two 8d threaded nails or two No. 8 wood screws. Other approved decking or fastener systems shall be installed in accordance with the manufacturer's installation requirements. [R507.7]

I. Where supported by attachment to an exterior wall, decks shall be positively anchored to the primary structure. For decks with cantilevered framing members, connection to exterior walls or other framing members shall be designed and constructed to resist uplift. [R507.8]

J. Vertical supports. Vertical loads shall be transferred to band joists with ledgers as follows. [R507.9.1]

1. Ledger details. Deck ledgers shall be a minimum 2 x8 nominal, pressure-preservative-treated Southern pine, incised pressure-preservative-treated hem-fir, or approved, naturally durable, No. 2 grade or better lumber. Deck ledgers shall not support concentrated loads from beams or girders. Deck ledgers shall not be supported on stone or masonry veneer.

2. Band joist details. Band joists supporting a ledger shall be a minimum 2" nominal, solid-sawn, spruce-pine-fir or better lumber or a minimum 1" by 9 1/2-inch dimensional, Douglas fir or better, laminated veneer lumber. Band joists shall bear fully on the primary structure capable of supporting all required loads.

3. Ledger to band joist details. Fasteners used in deck ledger connections in accordance with Table R507.9.1.3(1) shall be hot-dipped galvanized or stainless steel and shall be installed in accordance with Table R507.9.1.3(2) and Figures R507.9.1.3(1) and R507.9.1.3(2).

K. Lateral connection. Lateral loads shall be transferred to the ground or to a structure capable of transmitting them to the ground. Where the lateral load connection is provided in accordance with Figure R507.9.2(1), holddown tension devices shall be installed in not less than two locations per deck, within 24 inches of each end of the deck. Each device shall have an allowable stress design capacity of not less than 1,500 pounds. Where the lateral load connections are provided in accordance with Figure R507.9.2(2), the hold-down tension devices shall be installed in not less than four locations per deck, and each device shall have an allowable stress design capacity of not less than 750 pounds. [R507.9.2]

L. Holdown tension devices - Where legers are used, holdown tension devices shall be installed in not less than two locations per deck, within 24 inches of each end of the deck per Figure R507.9.2(1). Each device shall have an allowable stress design capacity of not less than 1,500 pounds. Where the lateral load connections are provided in accordance with Figure R507.9.2(2), the hold-down tension devices shall be installed in not less than four locations per deck, and each device shall have an allowable stress design capacity of not less than 750 pounds. [R507.9.2]

M. Continuous vertical connection of structural members (e.g., rafters -to- roof beams -to-post/columns -to- floor beams -to- foundation) is required using approved methods or connection devices. Suggested methods and devices are given on the following sheets.

N. Flashing shall be corrosion-resistant metal of nominal thickness not less than 0.019 inch (0.48 mm) or approved nonmetallic material that is compatible with the substrate of the structure and the decking materials. [R507.2.4]

9. **WALL BRACING**

A. Required Exterior Wall Bracing Method: Continuous Sheathing. (e.g. CS-WSP, CS-PF, CS-G).

B. Exterior sheathing and connections requirements shall be per Table R602.10.4. (i.e., Minimum thickness of sheathing shall be 7/16" OSB (APA rated). [Table 602.10.4 & R602.3(3)]

C. The following additional wall bracing requirements apply where specifically referenced on the Wall Bracing Plan(s).

1. An 800 lbs capacity hold down device shall be fastened to the edge of the braced wall panel closest to the corner and to the foundation or floor framing below. (Designer Note: This method applies to all floor levels for purpose of meeting Wall Bracing End Conditions (USBC FIGURE R602.10.7). This method applies to the top story (only) when preparing wall brace spreadsheet calculations (USBC Table 602.10.3(2).)

2. Interior finish material (e.g., gypsum board) shall be fastened at 4" OC (vice 7" OC) at panel edges, including top and bottom plates, and all horizontal joints blocked. [Ref: Table R602.10.3(2)]

D. Interior Finish

1. Braced wall panels shall have gypsum wall board installed on the side of the wall opposite the bracing material, unless specified otherwise. An approved interior finish material with an in-plane shear resistance equivalent to gypsum board shall be permitted to be substituted (e.g. 7/16" OSB).

2. For interior walls, where Wall Bracing Method GB (gypsum board) is used, gypsum board shall also be installed on the opposite wall. Typical designation on the floor plan is GB (DS or double-sided). Gypsum board may be omitted from the inside face of walls braced per methods GB, CS-PF, PFG, PFH and ABW, when (SS or single-sided) is specified on the floor plan. (ref: R602.10.4.3 and Table R602.10.5).

E. Braced wall end connections (i.e. to floor/ceiling/roof), which includes blocking shall be per R602.10.8.

F. Joist shall be supported latterly at the ends by full depth solid blocking; attachment to full depth header, band or rim joist; or an adjoining stud to prevent rotation per R502.7.

G. If required by the local building official, braced wall panel calculations or wall brace drawings are to accompany this plan when presented for permit.

10. **ENGINEERED WOOD PRODUCTS (EWPs)**

A. GENERAL INSTRUCTIONS

1. These instructions apply to both conventional stick-framed and Engineered Wood Product (EWP) structural supports.

2. EWPs (i.e., LVL Beams, LVL Columns, I-Joist & Trusses) will be specifically called out on the applicable plan and/or EWP LAYOUT drawing.

3. Where LVL Beams are used, the Location and Point Load (PL) value for each Bearing will be identified. This information will be repeated for all floor levels beneath the beam, to the foundation below. By this, loads are continuously traced and supported from their point of origin to the foundation.

4. Engineered LVL Columns or Parallel Stan Lumber (PSL) Columns are required for Bearing Point Loads in excess of 10,000 pounds. PLs that do not exceed those values may be stick framed per Table B2 and Figure B2.

B. CONVENTIONAL (STICK) FRAMING

The framing of headers, girders and bearing supports shall be accomplished using conventional lumber, unless specified otherwise. Material specifications for conventional lumber are per Note 12.C, Sheet A-2.

C. ENGINEERED LUMBER

1. Engineered Lumber installation instructions, layout drawings and specification sheets are provided by the EWP Material Provider and form an integral part of this drawing. Copies shall be available at the job site. Copies can be obtained from the EWP material provider, the homeowner, builder or designer.

2. EWPs for this project should be purchased from KEMPSVILLE BUILDING MATERIALS (KBM). POC is Brian O'Connor, 757-297-7819, brian.oconnor@kempsville building.com. (For OBX construction, contact Mike O'Brian, 252-722-3654, mobrien@kempsvillebuilding.com.)

3. The following guidance has been provided by KBM regarding installation of engineered lumber.

a Each LVL Beam shall be installed and supported as indicated by the Engineered Lumber "LAYOUT" drawing. Bearings shall be supported by either a LVL column or stick framed column.

b LVL Beams are typically designated with prefix designators. A "FB" prefix (e.g., FB1, FB2) typically designates the beam is installed **flush** within the floor cavity. A "DB" prefix (e.g., DB1, DB2) typically indicates the beam is **dropped** below the ceiling. Alternate designators may be used.

c Point Loads are given on the EWP specification sheets, provided by KBM. This information is transposed onto the "EWP Point Load" plans (Sheets E-2, E-3, etc), as applicable.

d LVL Columns are typically designated using a "P" prefix (e.g., P1, P2). Other designators may be used. LVL Columns are required to provide a "continuous" support between the beam and the foundation, without bearing on an any intermediate surfaces. Where necessary, LVL Columns shall be vertically stacked, end to end, on top of one another. Intermediate splices in LVL Columns may be located between floor levels and do not have to occur at floor intersections.

IMPORTANT NOTE

1. UNTREATED LVL COLUMNS SHALL NOT BEAR DIRECTLY ON CONCRETE OR MASONRY WITHOUT AN APPROPRIATE POST BASE OR MOISTURE PROOF BARRIER.
2. LVL COLUMNS DESIGNED BY KEMPSVILLE BUILDING MATERIALS **ARE** DESIGNED TO BEAR ON WALL TOP OR BOTTOM PLATES.
3. LVL COLUMNS DESIGNED BY 84 LUMBER **ARE NOT** DESIGNED TO BEAR ON WALL TOP OR BOTTOM PLATES.

11. **STAIRWAYS AND GUARDS.** See Sheet H-2.

12. **MATERIALS & SERVICES**

The following information is provided for informational purposes only and intended to assist the builder and homeowner with the construction and accessorizing ones project. Endorsements are not intended.

ENGINEERING & DESIGN SERVICES (PE & GEOTECH), SURVEYORS & BUILDERS
- House Plans by Design, LLC, https://houseplansbydesign.com/
- Superior Walls (Basement Design), https://www.superiorwallsva.com/
- Other POC info provided upon request

LUMBER
- Kempsville Building Materials*
- 84 Lumber*
- Saunders Building Supplies
- Portsmouth Lumber
- Guy C Lee Building Materials (OBX)
- Kellogg Supply (OBX)

(* provides engineered Beam & Joist design services)

MASONRY
- 757 Brick, Batchelder & Collins, https://757brick.com/
- Riverside Brick, http://www.riversidebrick.com/

SIDING
- CertainTeed, https://www.certainteed.com/siding/
- JamesHardie, https://www.jameshardie.com/
- VeneerStone, https://veneerstone.biz/
- Hansons, https://hansons.com/

MILLWORK
- HB&G, https://www.hbgcolumns.com/
- Architectural Depot, https://www.architecturaldepot.com/

STAIRS & RAILS
- StairSupplies, https://www.stairsupplies.com/

DOORS & WINDOWS
- Simonton, https://www.simonton.com/
- Anderson, https://www.andersenwindows.com/
- Pella, https://www.pellabranch.com/

KITCHEN & BATH DESIGN
- MARVA, https://www.marvamarble.com/locations/portsmouth-va.html
- Triton, https://tritonstone.com/
- Absolute Stone Designs, https://absolute-stone-design-usa.business.site/

FIREPLACES
- Fireside Hearth & Home (Mary) Fireplaces - Newport News
11850 Canon Blvd, Newport News 23606
757-293-8535
https://www.fireside-pro.com/newport-news-va.html
- Ray Johnson's Fireplace
5040 Virginia Beach Blvd 23462
757-497-8074
https://rayjohnsons.com/our-products/fireplaces/
- Quality Insulation And Building Products
905 Executive Ct
Chesapeake, VA 23320
Phone: 757-547-1700
http://superiorfireplaces.us.com/products/t/superior-gas-fireplaces

SCREENED PORCH SYSTEMS
- ScreenEZE, https://www.screeneze.com/
- ScreenTight, https://www.screentight.com/

FLASHING
- HUBER-ZIP SYSTEM, https://www.huberwood.com/

TIMBERFRAME
- Homestead Timber Frames, http://homesteadtimberframes.com/
- New Energy Works, https://newenergyworks.com/
- Carolina Timber Works, https://www.carolinatimberworks.com/

Drawing comply with the 2018 Virginia Uniform Statewide Building Code (USBC).

Authority: 2018 Virginia Building and Fire Code Related Laws Package § 54.1-402.

CONSTRUCTION NOTES (DECKS, WALL BRACING, MATL'S & SERVICES)

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Designer: Neil Wilson, Engineer
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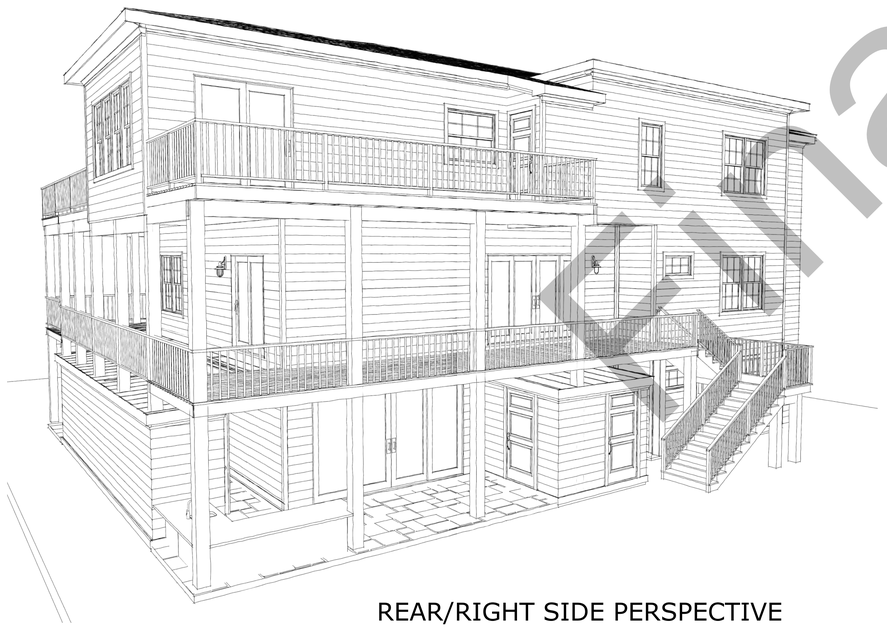
DATE:
10/16/2022

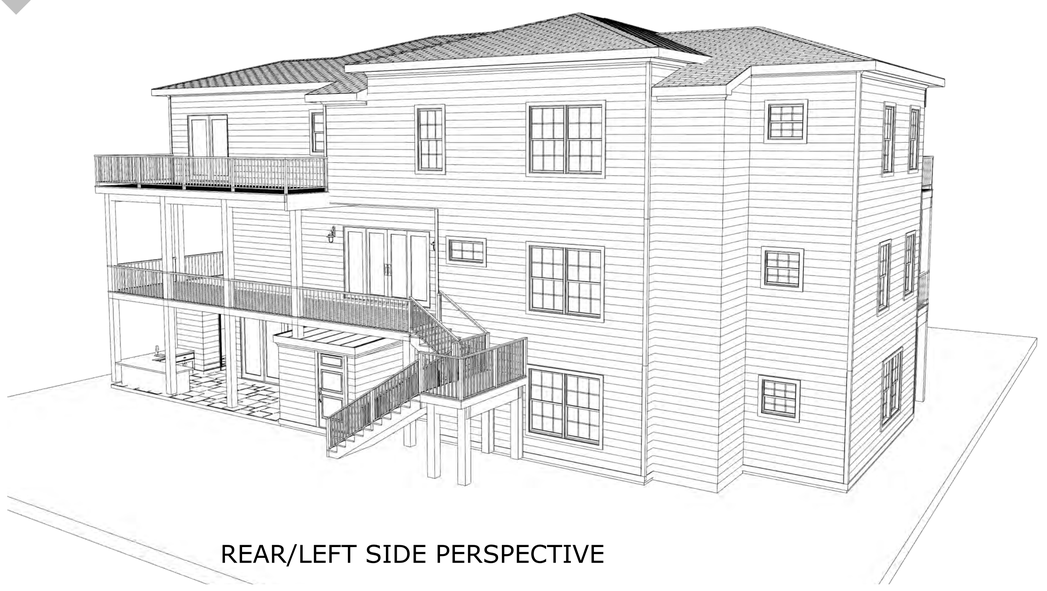
SHEET:
A-4

FRONT/LEFT SIDE PERSPECTIVE

FRONT/RIGHT SIDE PERSPECTIVE



REAR/RIGHT SIDE PERSPECTIVE



REAR/LEFT SIDE PERSPECTIVE

HOUSE PLANS BY DESIGN, LLC

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Authority: 2018 Virginia Building and Fire Code Related Laws Package § 54.1-402.

PERSPECTIVE & ELEVATION VIEWS

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DATE:

10/16/2022

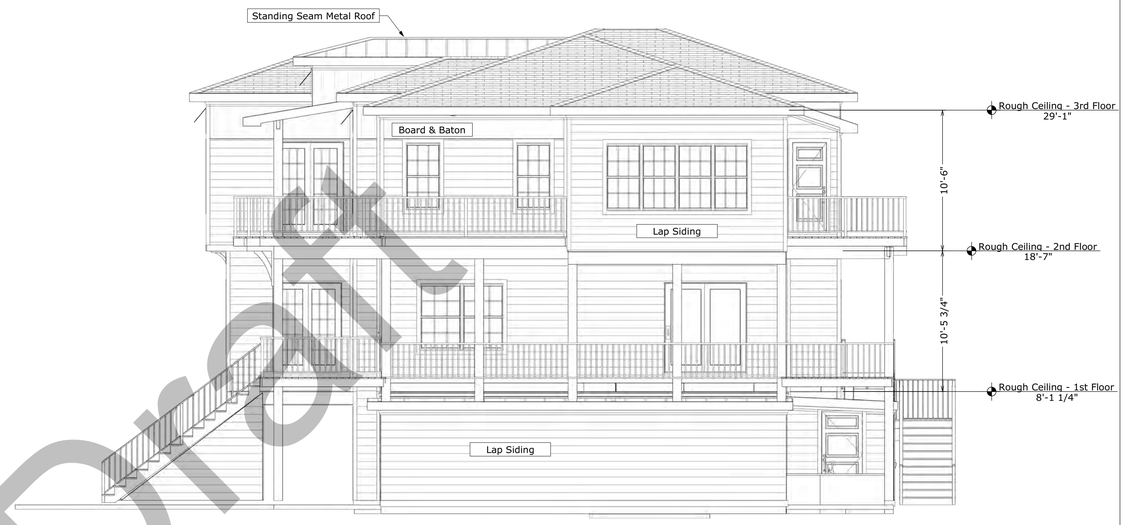
SHEET:

B-1

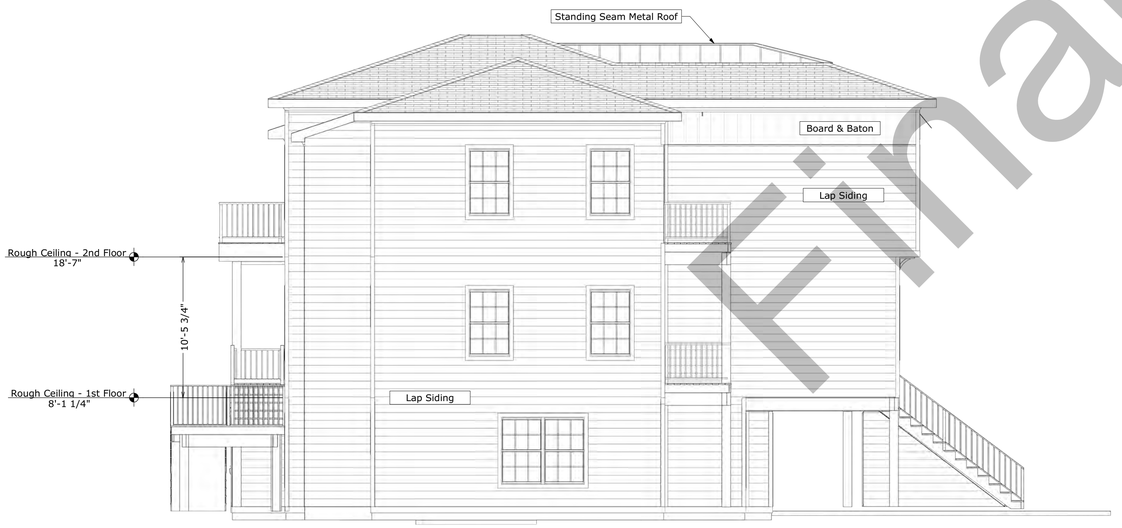
EXTERIOR SIDING

1. Lap and Board & Batten siding are used for exterior facades depicted in the design of this house.
2. See Material Note 3.A, Sheet A-1.

FRONT ELEVATION, 3/16" Scale



RIGHT SIDE ELEVATION, 3/16" Scale



LEFT SIDE ELEVATION, 3/16" Scale

REAR ELEVATION, 3/16" Scale

ROOF HEIGHT

Maximum Roof Height is typically 35' -40', which is regulated by the City (or County) **Zoning** Codes (or Ordnances). For residential construction, the procedure for measuring Roof Height varies. Consult applicable codes for requirements.

REFERENCE DIMENSIONS

Elevation dimensions are approximate and are for informational purposes only.

HOUSE PLANS BY DESIGN, LLC

Drawing comply with the 2018 Virginia Uniform Statewide Building Code (USBC).

Authority: 2018 Virginia Building and Fire Code Related Laws Package § 54.1-402.

PERSPECTIVE & ELEVATION VIEWS

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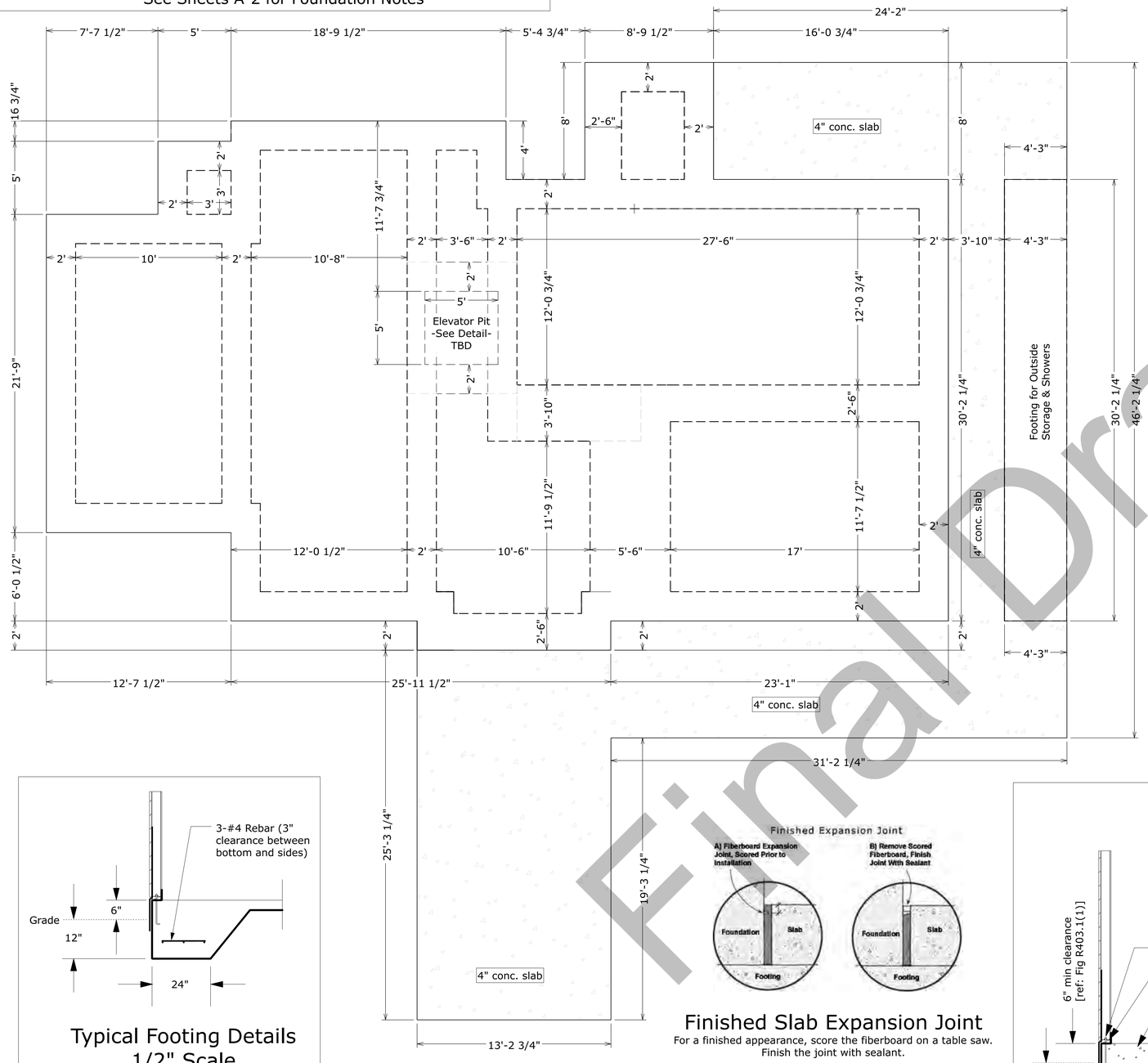
SHEET:

B-2

MONOLITHIC SLAB FDN DESIGN

*** See Sheets A-2 for Foundation Notes ***



MONOLITHIC SLAB FOOTING DESIGN

All Footings are Design Type FF 2.0 per Table FDN-2, uso.

TABLE FDN-2, Footing Design Table
(Mark #'s shown on Foundation Plan)

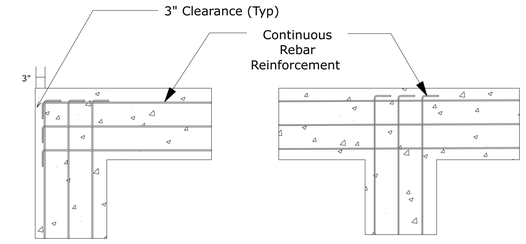
Mark #	Size	Thickness	Depth	Rebar		PL (max)
	W (in)	T (in)	E (in)	Continuous	Ties	(kips)
FS 2.0	24	8	12	(3) #4	#4	N/A
FF 2.0	24	10	14	(3) #4	#4	3.2 K
FF 2.5	30	10	14	(3) #4	#4	6.7 K
FF 3.0	36	10	14	(3) #4	#4	10.7 K
FF 3.5	42	12	16	(3) #4	#4	15.2 K
FF 4.0	48	12	16	(3) #4	#4	21.2 K

Notes

1. This table provides design criteria for footings, incorporating both normal loading associated with typical live and dead loads; as well as Point Loads associated with Beam design.

2. Reinforcement -Where two or more pieces of reinforcing steel are used to provide continuous horizontal reinforcing, the ends of the bars should be lapped to provide continuity. The minimum recommended lap for #3 rebar is 19" and # 4 bars is 25 inches. Horizontal bars terminating at corners of perimeter foundations and where an interior foundation intersects a perimeter foundation should have a standard 90 degree hook of 8 inches for # 4 bars.

3. Concrete stem walls with a length of 48 inches or less, shall have reinforcement sized and located in accordance with Figure R602.10.9. [R602.10.9.4].



Typical Footing Details
Corners & Intersections
1/2" Scale

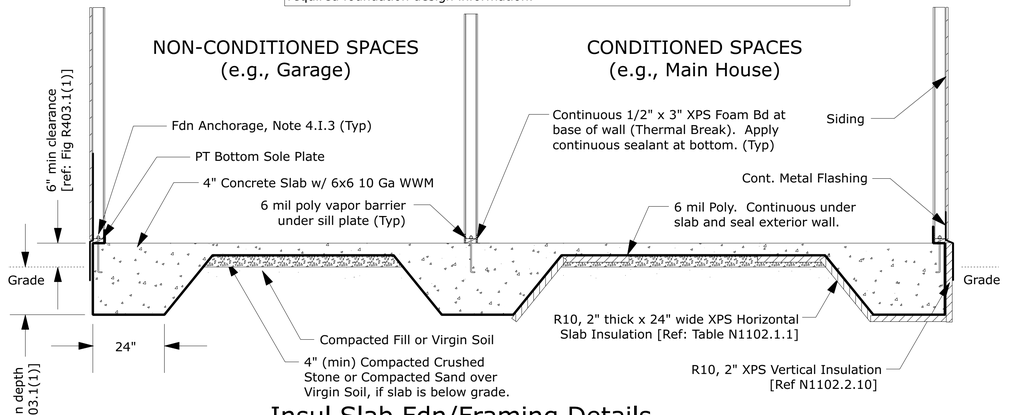
Typical Footing Details
1/2" Scale

Finished Slab Expansion Joint

For a finished appearance, score the fiberboard on a table saw. Finish the joint with sealant.

FOUNDATION PLAN
(MONOLITHIC SLAB)
1/4" Scale

Note: Foundation height (# of blocks) is governed per Table FDN-1 and may be adjusted in the field in order to increase the foundation reveal above grade (aesthetics), changes in elevation, or to accommodate soil conditions. Consult Survey and Soil Reports for required foundation design information.



Insul Slab Fdn/Framing Details
Cross Section Perp to Walls
1/2" Scale

Note: For Shrink Swell Conditions contact geotechnical or civil engineer.

POINT LOADS & WALL BRACING

1. See Engineered Wood Products sheets for Point Load and EWP requirements.
2. See Wall Bracing sheets for Hold Down device locations and requirements.

Drawing comply with the 2018 Virginia Uniform Statewide Building Code (USBC).

Authority: 2018 Virginia Building and Fire Code Related Laws Package § 54.1-402.

FOUNDATION - MONOLITHIC SLAB DESIGN

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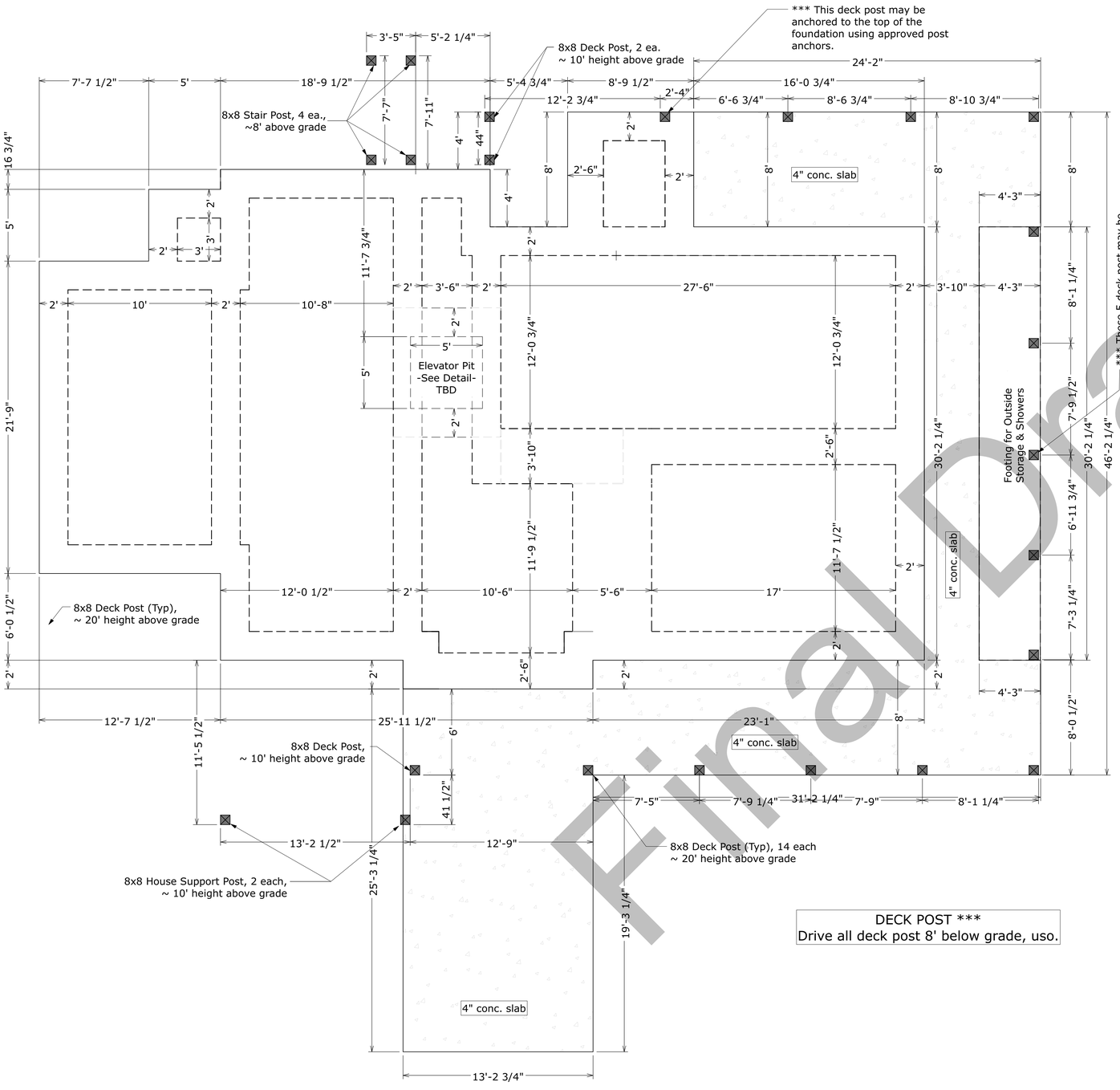
SHEET:

C-1

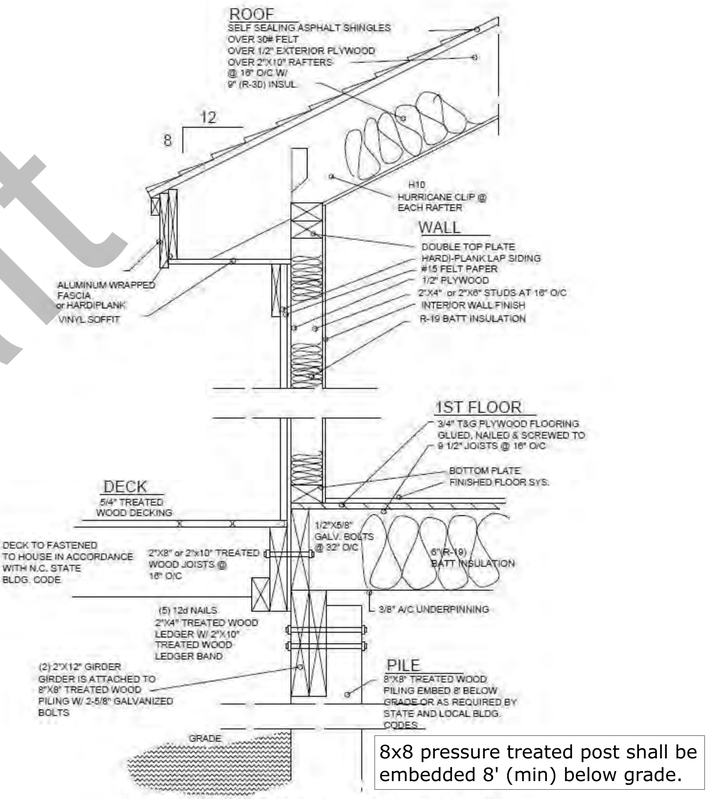
MONOLITHIC SLAB FDN DESIGN

*** See Sheets A-2 for Foundation Notes ***



DECK POST ***
Drive all deck post 8' below grade, uso.

FOUNDATION PLAN
(POST & BEAM)
1/4" Scale



8x8 pressure treated post shall be embedded 8' (min) below grade.

TYPICAL WALL SECTION

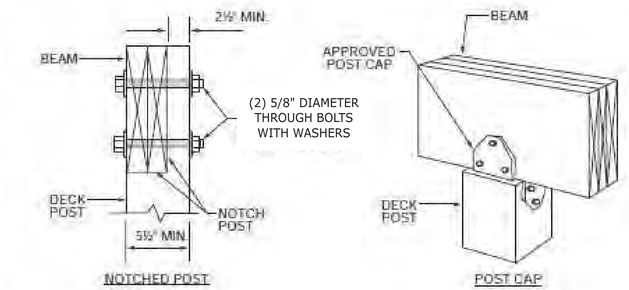


FIGURE R507.7.1
DECK BEAM TO DECK POST

Drawing comply with the 2018 Virginia Uniform Statewide Building Code (USBC).

Authority: 2018 Virginia Building and Fire Code Related Laws Package § 54.1-402.

FOUNDATION - MONOLITHIC SLAB DESIGN

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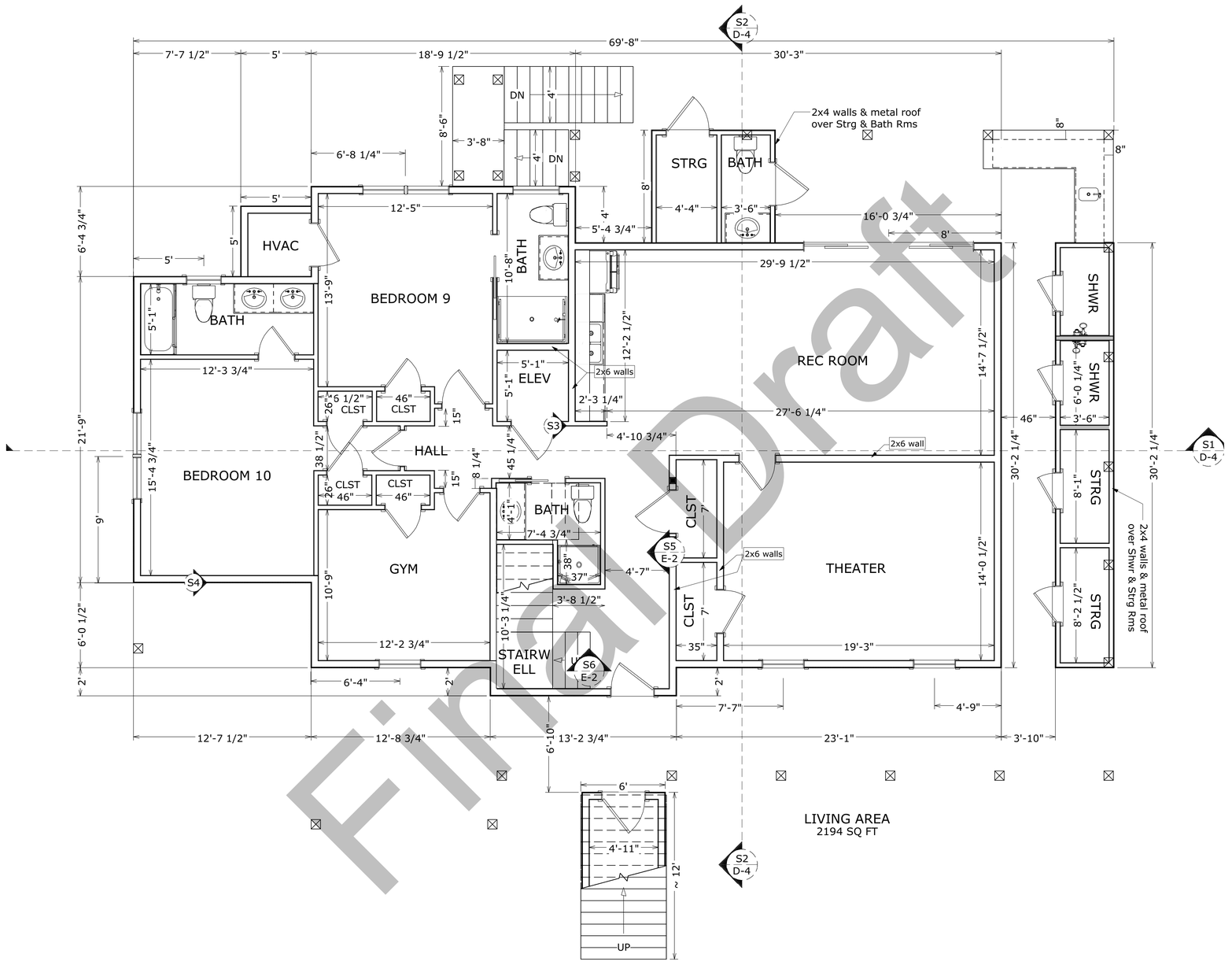
SHEET:
C-2

DESIGN REQUIREMENTS

1. Foundation Type: Monolithic slab on grade
2. Exterior Wall Framing: 2x6
3. Interior Wall Framing: 2x4 (and 2x6 for plumbing drains, as needed).
4. Wall Height
   a. b. 1st Level: 8'
   b. 2nd Level: 9'
   c. 3rd Level: 10'



FLOOR PLAN, 1st LEVEL, 1/4" SCALE
(See Sheets A-2 & A-3 for Framing Notes)

Drawing comply with the 2018 Virginia Uniform Statewide Building Code (USBC).

Authority: 2018 Virginia Building and Fire Code Related Laws Package § 54.1-402.

PLANS - FLOOR

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Designer: Neil Wilson, Engineer
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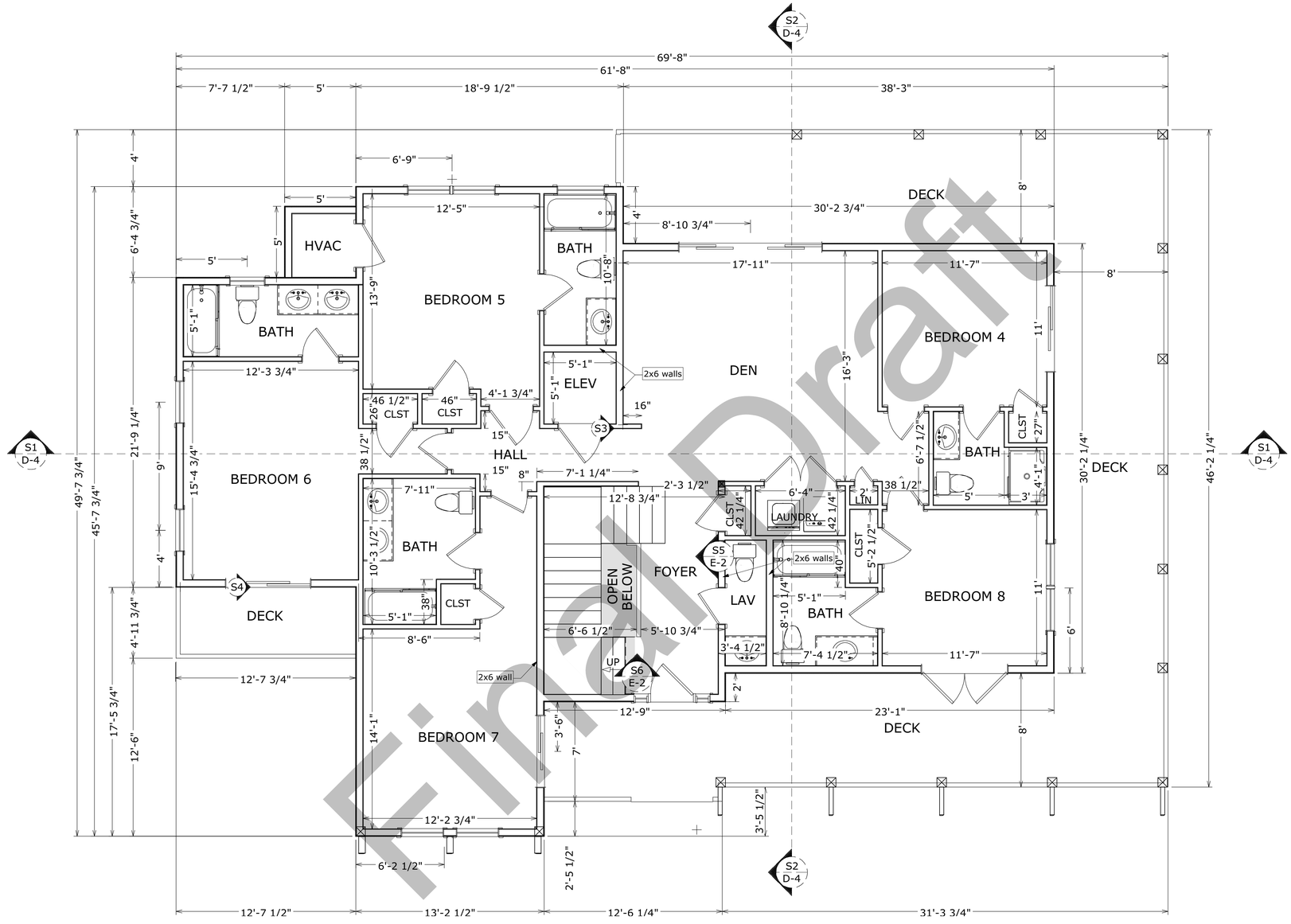
SHEET:
D-1

DESIGN REQUIREMENTS

1. Foundation Type: Monolithic slab on grade
2. Exterior Wall Framing: 2x6
3. Interior Wall Framing: 2x4 (and 2x6 for plumbing drains, as needed).
4. Wall Height
   a. b. 1st Level: 8'
   b. 2nd Level: 9'
   c. 3rd Level: 10'



FLOOR PLAN, 2nd LEVEL, 1/4" SCALE
(See Sheets A-2 & A-3 for Framing Notes)

Open Web Floor joist used for Floor Framing.
See EWP Plans provided by Kempsville Building Materials (KBM)

Drawing comply with the 2018 Virginia Uniform Statewide Building Code (USBC).

Authority: 2018 Virginia Building and Fire Code Related Laws Package § 54.1-402.

PLANS - FLOOR

DRAWINGS PROVIDED BY:
House Plans by Design, LLC
Designer: Neil Wilson, Engineer
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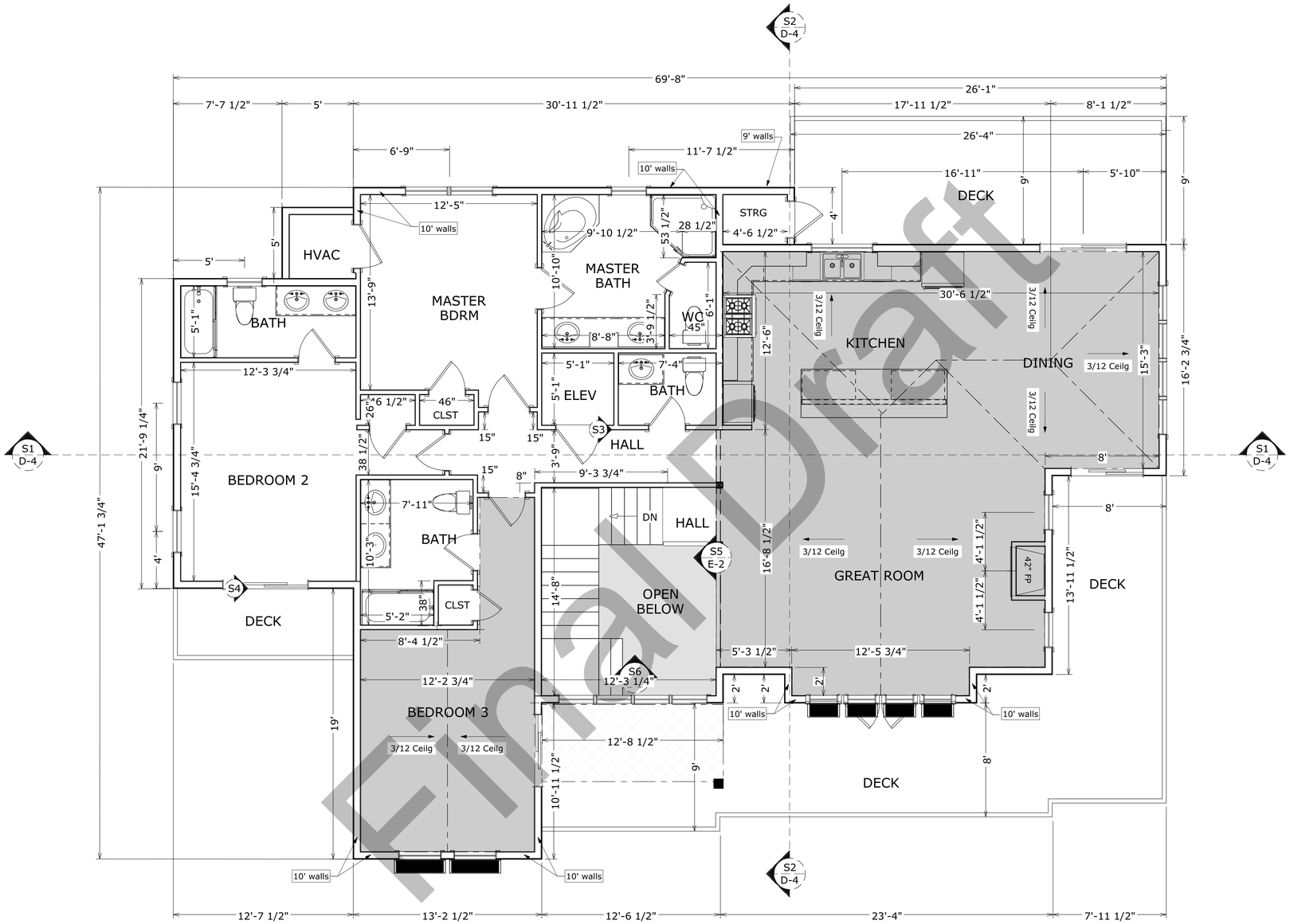
DATE:
10/16/2022

SHEET:
D-2

DESIGN REQUIREMENTS

1. Foundation Type: Monolithic slab on grade
2. Exterior Wall Framing: 2x6
3. Interior Wall Framing: 2x4 (and 2x6 for plumbing drains, as needed).
4. Wall Height
   a. b. 1st Level: 8'
   b. 2nd Level: 9'
   c. 3rd Level: 10'



LIVING AREA

FLOOR PLAN, 3nd LEVEL, 1/4" SCALE
(See Sheets A-2 & A-3 for Framing Notes)

Open Web Floor joist used for Floor Framing.
See EWP Plans provided by Kempsville Building Materials (KBM)

Drawing comply with the 2018 Virginia Uniform Statewide Building Code (USBC).

Authority: 2018 Virginia Building and Fire Code Related Laws Package § 54.1-402.

PLANS - FLOOR

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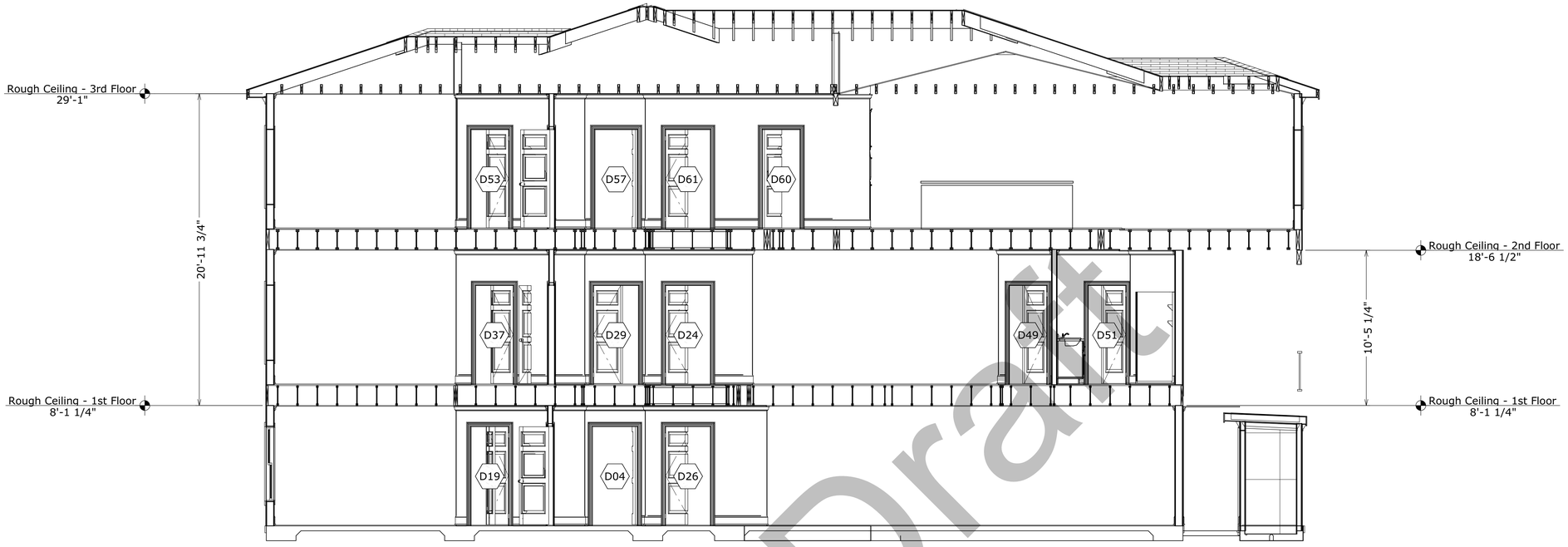
SHEET:
D-3



CROSS SECTION 1, 1/4" SCALE
(See Sheets A-2 & A-3 for Framing Notes)

CROSS SECTION 2, 1/4" SCALE
(See Sheets A-2 & A-3 for Framing Notes)

HOUSE PLANS BY DESIGN, LLC

Drawing comply with the 2018 Virginia Uniform Statewide Building Code (USBC).

Authority: 2018 Virginia Building and Fire Code Related Laws Package § 54.1-402.

PLANS - SECTION VIEWS

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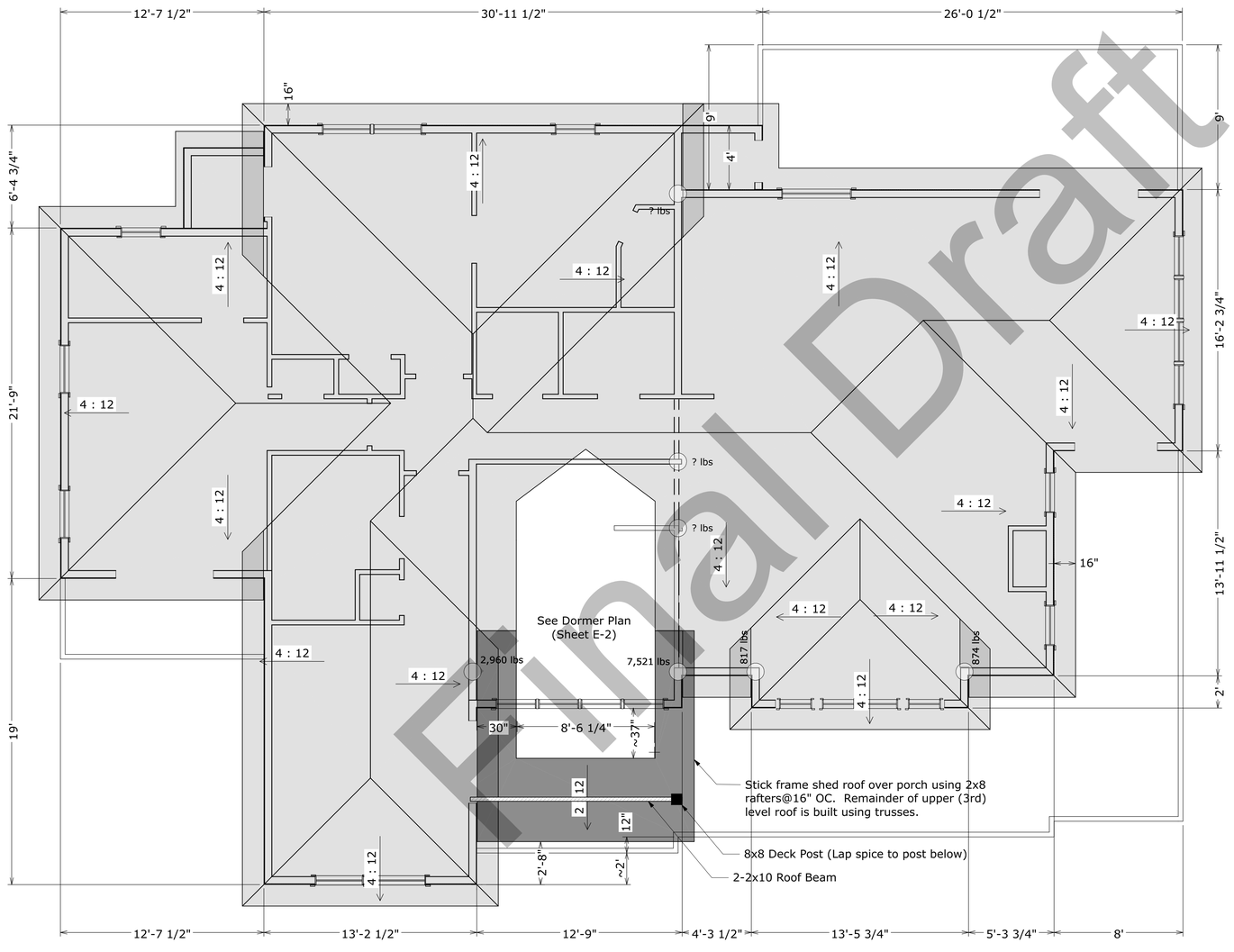
D-4

HIP AND VALLEY RAFTERS (ROOF PLs) SHALL BE SUPPORTED AT THE RIDGE PER NOTE 6.C. REFER TO AND ALSO USE THE EWP PLAN PROVIDED BY THE MATERIALS PROVIDER.

ROOF FRAMING

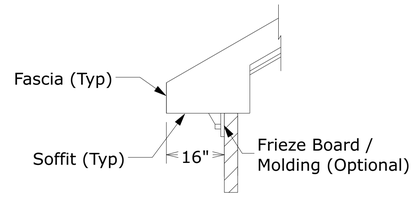
1. All rafters depicted on this sheet are 2x10 @16" OC, uso.
2. Bottom of all rafters shall bear directly on wall plates.
3. All soffits (at each level) shall be at the same height.
4. Install rafter ties per note 6.G(3), Sheet A-3, as required.



ROOF PLAN, 3rd LEVEL, 1/4" SCALE
(See Sheets A-3 for Roof Notes)

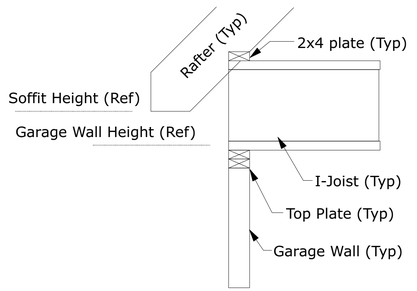
ENGINEERED WOOD PRODUCTS

1. See Sheet J for Point Loads and EWP requirements.
2. Proper alignment and installation of floor joist, bearing studs and blocking is vitally important to ensure beams and corresponding Load Points are properly supported. See Beam Installation Guide on Sheet F-1.



Detail SOF-1
Typical Soffit Detail (1" Scale)

Typical Soffit Detail for 4" Brick Veneer



Detail GRF-1
Garage Wall Height Adjustment (1" Scale)

Where Garage soffits/rafters are required to be at same elevation as the adjacent soffits/rafters over the main house, adjust Garage wall height as shown. Confirm Rafter and I-Joist sizes prior to framing Garage walls.

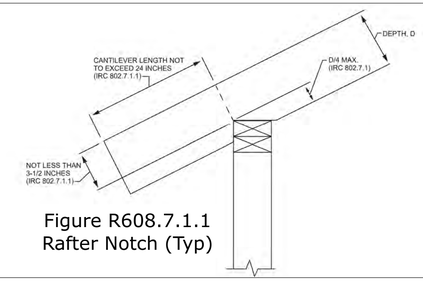
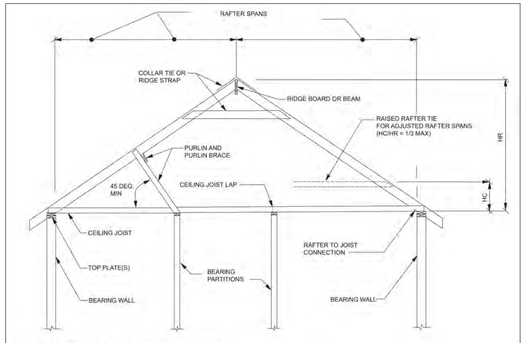


Figure R608.7.1.1
Rafter Notch (Typ)



For SI: 1 inch = 25.4 mm, 1 foot = 305 mm, 1 degree = 0.018 rad.
H_C = Height of ceiling joists or rafter ties measured vertically above the top of rafter support walls.
H_R = Height of roof ridge measured vertically above the top of the rafter support walls.

Figure 802.45
Braced Rafter Construction
Typical Ceiling Joist & Rafter Connections

DIMENSIONS

Dimensions on this drawing are provided for reference only and are intended to ensure maximum joist spans are not exceeded. See applicable Floor Plans for framing dimensions not shown here.

TABLE RFT-1, RAFTER SPECS (20# Live & 10# Dead Load)

Joist Type	Size & Spacing	Max Span	L/D	Application
Rafter	2x6 @ 16" OC	13'-6"	180	Ceiling NOT attached to Rafter
Rafter	2x8 @ 16" OC	17'-1"	180	Ceiling NOT attached to Rafter
Rafter	2x10 @ 16" OC	20'-3"	180	Ceiling NOT attached to Rafter
Rafter	2x10 @ 16" OC	20'-3"	240	Ceiling attached to Rafter

Drawing comply with the 2018 Virginia Uniform Statewide Building Code (USBC).

Authority: 2018 Virginia Building and Fire Code Related Laws Package § 54.1-402.

ROOF

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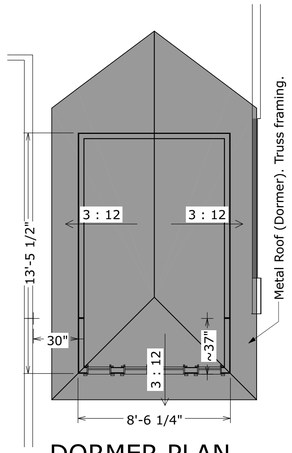
SHEET:
E-1

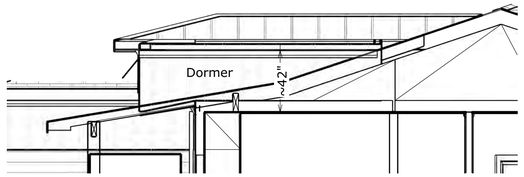
HIP AND VALLEY RAFTERS (ROOF PLs) SHALL BE SUPPORTED AT THE RIDGE PER NOTE 6.C. REFER TO AND ALSO USE THE EWP PLAN PROVIDED BY THE MATERIALS PROVIDER.

ROOF FRAMING

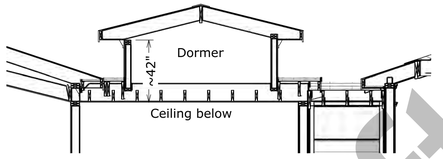
1. Upper (3rd) level roof is designed using trusses, except for shed roof over porch. See Sheet E-1.
2. Lower (1st) level roofs over outside bath, shower and storage rooms are stick framed using 2x6 rafters. See Sheet E-2.



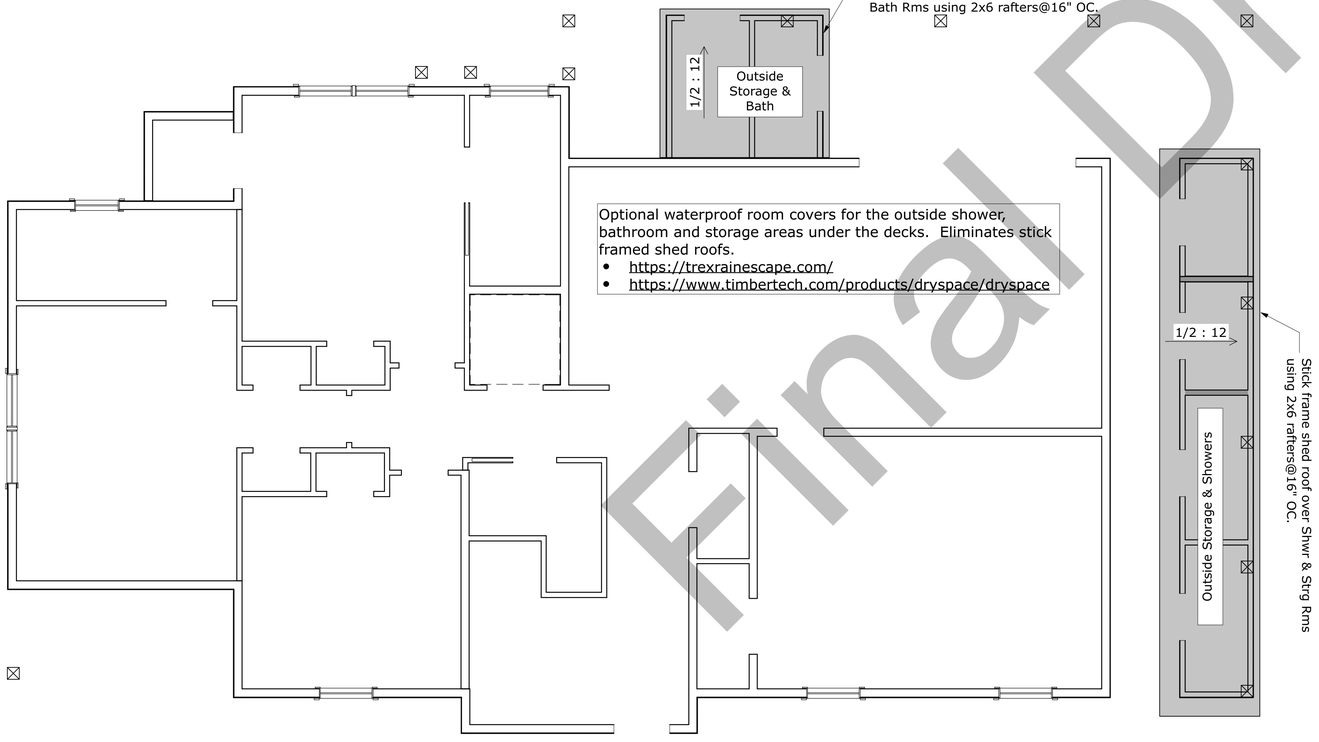
DORMER PLAN,
3rd LEVEL,
1/4" SCALE



DORMER PLAN,
Cross Section 5
1/4" SCALE



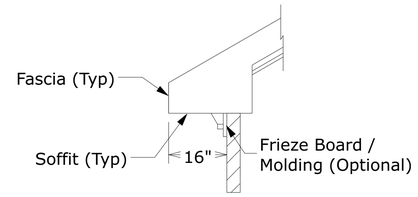
DORMER PLAN,
Cross Section 6
1/4" SCALE



ROOF PLAN, 1ST LEVEL, 1/4" SCALE
(See Sheets A-3 for Roof Notes)

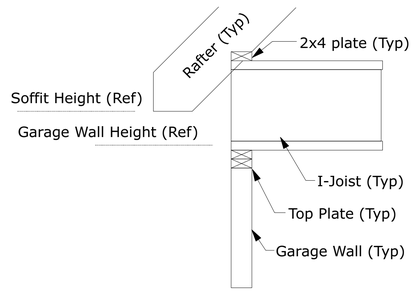
ENGINEERED WOOD PRODUCTS

1. See Sheet J for Point Loads and EWP requirements.
2. Proper alignment and installation of floor joist, bearing studs and blocking is vitally important to ensure beams and corresponding Load Points are properly supported. See Beam Installation Guide on Sheet F-1.



Detail SOF-1
Typical Soffit Detail (1" Scale)

Typical Soffit Detail for 4" Brick Veneer



Detail GRF-1
Garage Wall Height Adjustment (1" Scale)

Where Garage soffits/rafters are required to be at same elevation as the adjacent soffits/rafters over the main house, adjust Garage wall height as shown. Confirm Rafter and I-Joist sizes prior to framing Garage walls.

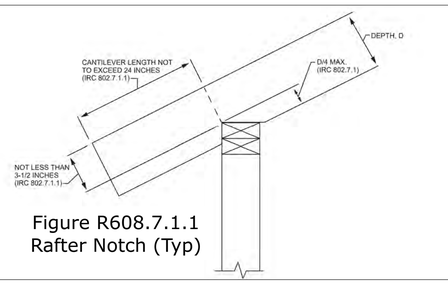
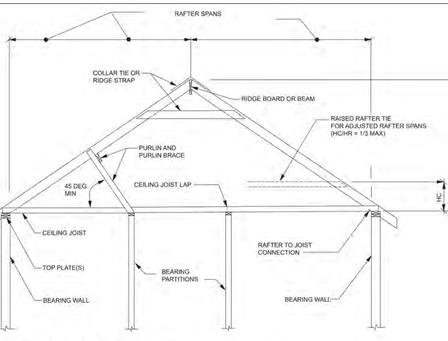


Figure R608.7.1.1
Rafter Notch (Typ)



For SI: 1 inch = 25.4 mm, 1 foot = 305 mm, 1 degree = 0.018 rad.
H_C = Height of ceiling joists or rafter ties measured vertically above the top of rafter support walls.
H_R = Height of roof ridge measured vertically above the top of the rafter support walls.

Figure 802.45
Braced Rafter Construction
Typical Ceiling Joist & Rafter Connections

DIMENSIONS

Dimensions on this drawing are provided for reference only and are intended to ensure maximum joist spans are not exceeded. See applicable Floor Plans for framing dimensions not shown here.

TABLE RFT-1, RAFTER SPECS (20# Live & 10# Dead Load)

Joist Type	Size & Spacing	Max Span	L/D	Application
Rafter	2x6 @ 16" OC	13'-6"	180	Ceiling NOT attached to Rafter
Rafter	2x8 @ 16" OC	17'-1"	180	Ceiling NOT attached to Rafter
Rafter	2x10 @ 16" OC	20'-3"	180	Ceiling NOT attached to Rafter
Rafter	2x10 @ 16" OC	20'-3"	240	Ceiling attached to Rafter

Drawing comply with the 2018 Virginia Uniform Statewide Building Code (USBC).

Authority: 2018 Virginia Building and Fire Code Related Laws Package § 54.1-402.

ROOF

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House Plans by Design, LLC
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www.HousePlansbyDesign.com

DATE:
10/16/2022

SHEET:
E-2

DECKS & PORCHES

*** See Sheets A-4 for Deck & Porch Notes ***

Main Deck - Front Elevation, 1/4" Scale

Main Deck - Right Side Elevation, 1/4" Scale

Main Deck - Rear Elevation, 1/4" Scale

SHEET:	DATE:
F-1	10/16/2022

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DECK/PORCH

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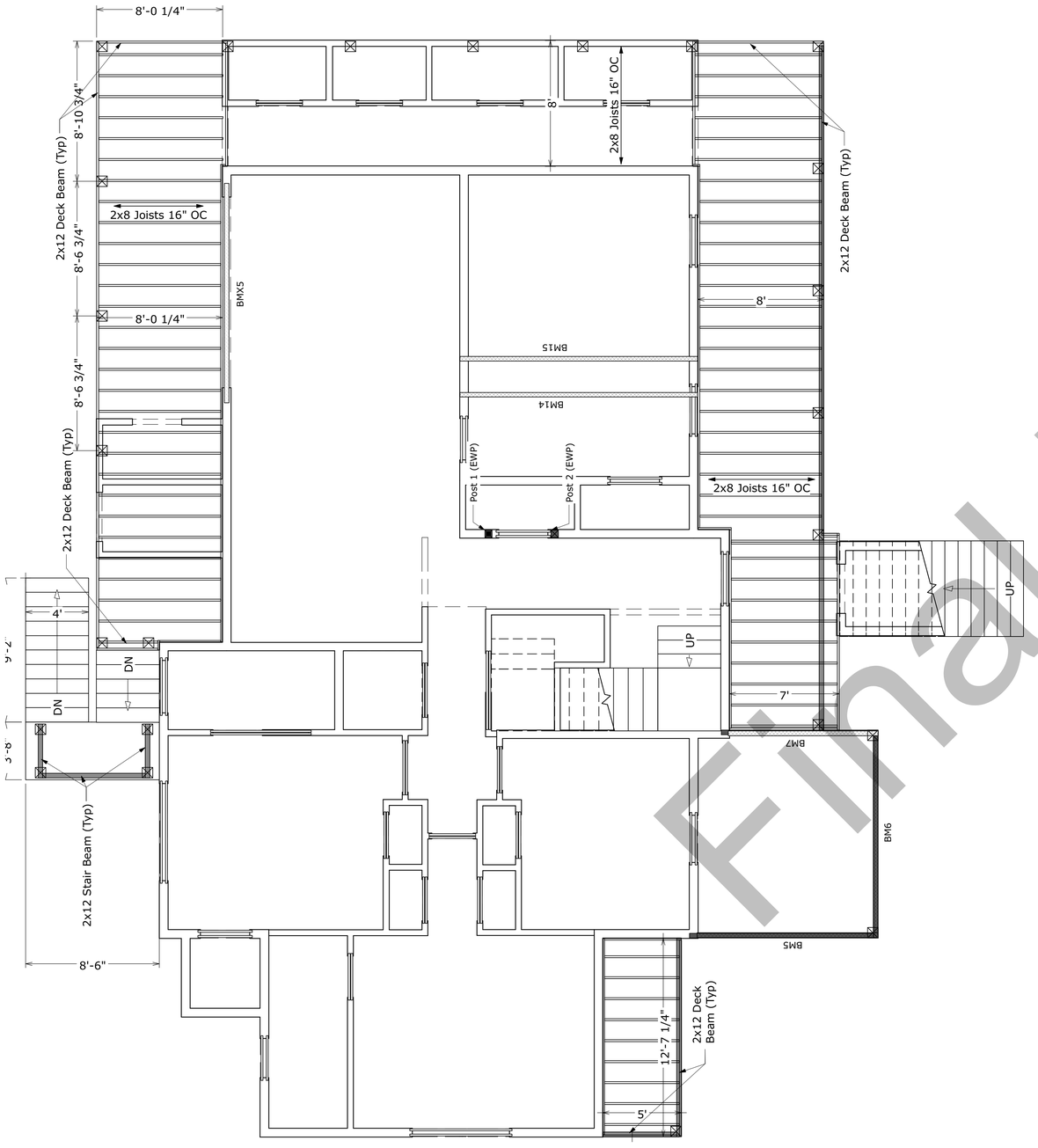
HOUSE PLANS BY DESIGN, LLC

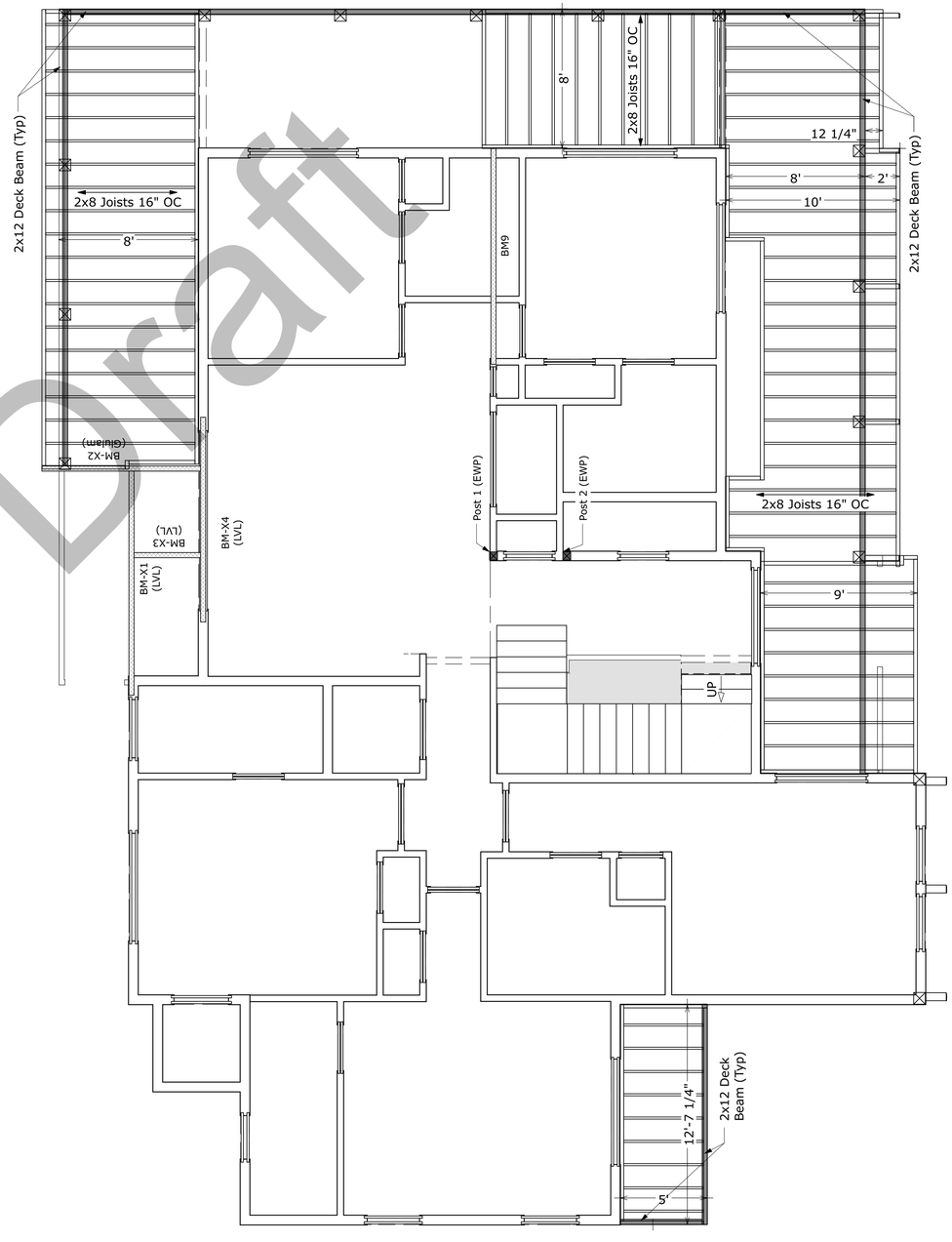
DECKS & PORCHES

*** See Sheets A-4 for Deck & Porch Notes ***

DECK WRAP
Wrap underside of decks with owner approved material such as lattice.



Deck Framing - 2nd Level Floor Joist, 1/4" Scale



Deck Framing - 3rd Level Floor Joist, 1/4" Scale

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DECK/PORCH

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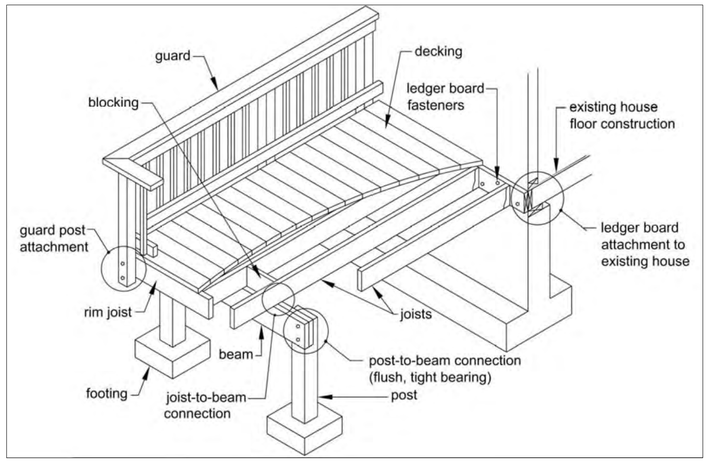
DECKS & PORCHES

*** See Sheets A-4 for Deck & Porch Notes ***



FOOTING DETAILS

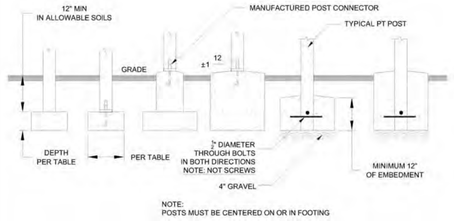


Figure R507.3
Deck Post to Footing Connection

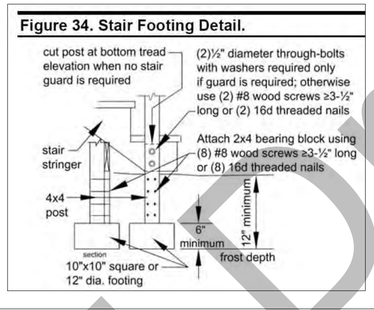


Figure R507.3
Deck Post to Footing Connection

TABLE R507.4
DECK POST HEIGHT[a]

DECK POST SIZE	MAXIMUM HEIGHT[b, c] (feet-inches)
4 × 4	6-9[c]
4 × 6	8
6 × 6	14
8 × 8	14

Table R507.4
Deck Post Height

TABLE R507.3.1
MINIMUM FOOTING SIZE FOR DECKS

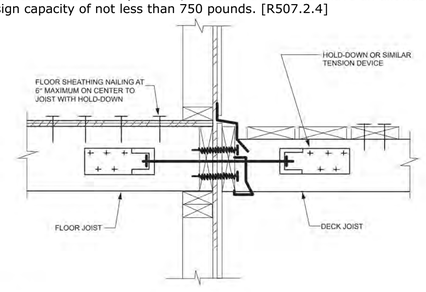
LIVE OR GROUND SNOW LOAD[b] (psf)	TRIBUTARY AREA (sq. ft.)	LOAD BEARING VALUE OF SOILS[a, b, c] (psf)		
		1500[c]		
		Side of a square footing (inches)	Diameter of a round footing (inches)	Thickness (inches)
40	20	12	14	6
	40	14	16	6
	60	17	19	6
	80	20	22	7
	100	22	25	8
	120	24	27	9
	140	26	29	10
	160	28	31	11

Table R507.3.1
Minimum Footing Size for Decks

DECK LATERAL LOAD CONNECTIONS

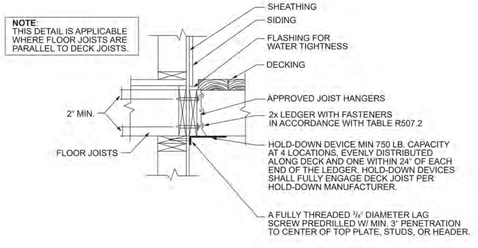
Deck lateral load connection is allowed per Figure R507.2.3(1) -OR- R507.2.3(2).

- Figure R507.9.2(1) design requires hold-down tension devices be installed in not less than two locations per deck, within 24 inches of each end of the deck. Each device shall have an allowable stress design capacity of not less than 1,500 pounds.
- Figure R507.9.2(2) design requires hold-down tension devices be installed in not less than four locations per deck, and each device shall have an allowable stress design capacity of not less than 750 pounds. [R507.2.4]



e SI: 1 inch = 25.4 mm.

FIGURE 507.2.3(1)
DECK ATTACHMENT FOR LATERAL LOADS

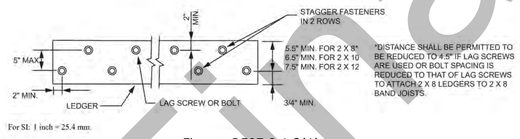


ж SI: 1 inch = 25.4 mm, 1 foot = 304.8 mm.

FIGURE R507.2.3(2)
DECK ATTACHMENT FOR LATERAL LOADS

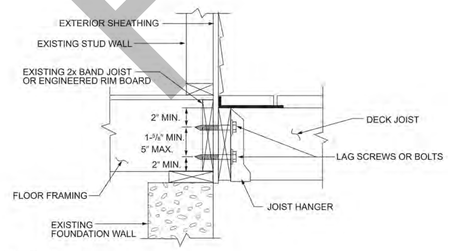
Figures R507.9.2 (1 & 2)
Deck Attachment for Lateral Loads

DECK & LEDGER ATTACHMENTS



For SI: 1 inch = 25.4 mm.

Figures R507.9.1.3(1)
Placement of Lag Screws and Bolts in Ledgers



For SI: 1 inch = 25.4 mm.

Figures R507.9.1.3(2)
Placement of Lag Screws and Bolts in Band Joist

Figures R507.9.1.3(1&2)
Placement of Lag Screws and Bolts in ...

Table R507.9.1.3(1)
Deck Ledger Connections to Band Joist
(Deck live load = 40 psf, deck dead load = 10 psf, snow load ≤ 40 psf)

CONNECTION DETAILS	JOIST SPAN						
	6' and less	6'-1" to 8'	8'-1" to 10'	10'-1" to 12'	12'-1" to 14'	14'-1" to 16'	16'-1" to 18'
	On-center spacing of fasteners						
½-inch diameter lag screw with ½-inch maximum sheathing[c, d]	30	23	18	15	13	11	10
½-inch diameter bolt with ½-inch maximum sheathing[d]	36	36	34	29	24	21	19
½-inch diameter bolt with 1-inch maximum sheathing[d]	36	36	29	24	21	18	16

For SI: 1 inch = 25.4 mm, 1 foot = 304.8 mm, 1 pound per square foot = 0.0479 kPa.

a. Ledgers shall be flashed in accordance with Section R703.4 to prevent water from contacting the house band joist.
b. Snow load shall not be assumed to act concurrently with live load.
c. The tip of the lag screw shall fully extend beyond the inside face of the band joist.
d. Sheathing shall be wood structural panel or solid sawn lumber.
e. Sheathing shall be permitted to be wood structural panel, gypsum board, fiberboard, lumber or foam sheathing. Up to ½-inch thickness of stacked washers shall be permitted to substitute for up to ½ inch of allowable sheathing thickness where combined with wood structural panel or lumber sheathing.

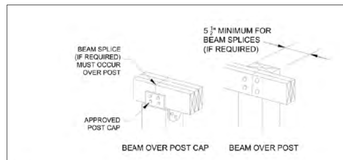
Table R507.9.1.3(2)
Placement of Lag Screws and Bolts in Deck Ledgers and Band Joist
PLACEMENT OF LAG SCREWS AND BOLTS IN DECK LEDGERS AND BAND JOISTS

	MINIMUM END AND EDGE DISTANCES AND SPACING BETWEEN ROWS			
	TOP EDGE	BOTTOM EDGE	ENDS	ROW SPACING
Ledger[a]	2 inches[d]	¾ inch	2 inches[b]	1⅞ inches[b]
Band Joist[c]	¾ inch	2 inches	2 inches[b]	1⅞ inches[b]

For SI: 1 inch = 25.4 mm.

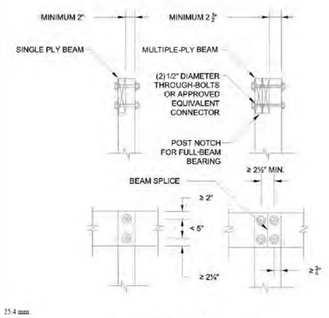
a. Lag screws or bolts shall be staggered from the top to the bottom along the horizontal run of the deck ledger in accordance with Figure R507.2.1(1).
b. Maximum 5 inches.
c. For engineered rim joists, the manufacturer's recommendations shall govern.
d. The minimum distance from bottom row of lag screws or bolts to the top edge of the ledger shall be in accordance with Figure R507.2.1(1).

Tables R507.9.1.3(2)
Deck Ledger / Band Joist Connections...



25.4 mm.

FIGURE R507.5.1(1)
DECK BEAM TO DECK POST



25.4 mm.

FIGURE R507.5.1(2)
NOTCHED POST-TO-BEAM CONNECTION

Figures R507.5.1(1 & 2)
Deck & Post Beam Connections

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Authority: 2018 Virginia Building and Fire Code Related Laws Package § 54.1-402.

DECK/PORCH

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DECKS & PORCHES
*** See Sheets A-4 for Deck & Porch Notes ***

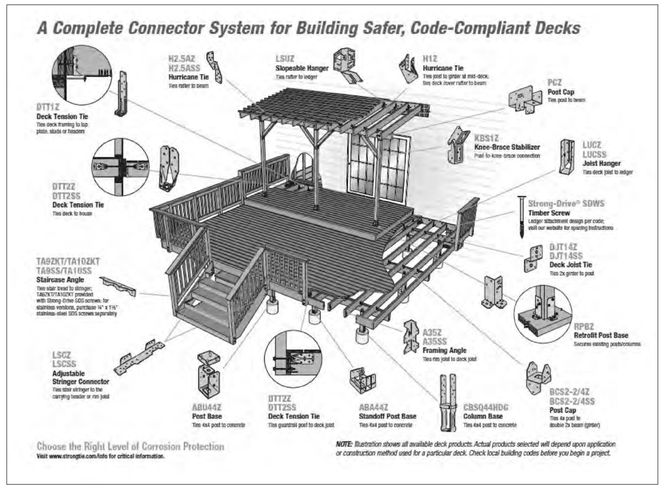
DECK & PORCH CONNECTORS (RECOMMENDED)

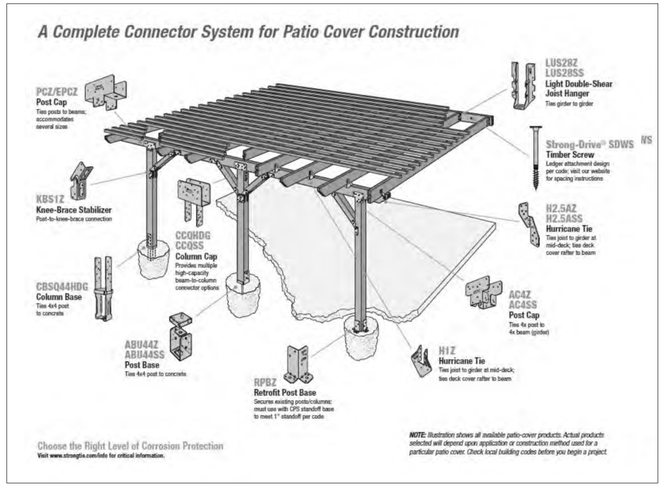
CONSTRUCTION / DESIGN NOTE

Various connector materials and products options are available on the market. To provide flexibility for materials procurement, the following tables provide recommended options for use. Consult manufacturer for specifications and to confirm applicability.

CONNECTORS

Readily available Simpson products are shown. Other approved connectors and connection methods are permitted. Confirm selection based on application and construction method. (See Note 11.K.)





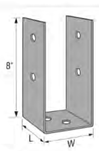
PORCH COLUMN & POST BASES

All columns are required to be anchored at the base. The following Simpson Strong-Tie post bases (or equal) are recommended.

ABA/ABU/ABW

Adjustable and Standoff Post Bases

Post bases that install on hardened concrete and provide a 1" standoff at the bottom of the post to help prevent moisture rot. Slotted to adjust around the anchor bolt for optimum post placement.



UB/WUB

Post Brackets

Saddle brackets for connecting posts to concrete.

CPTZ

Concealed Post Tie

The unique design provides a clean, concealed connection for a premium look. Also provides the code-required 1" standoff above concrete to help prevent rot at the post end.

RPBZ

Retrofit Post Base

The RPBZ retrofit post base is designed to reinforce existing posts and columns. The single, versatile model will fit on any size post consisting of a double 2x4 or larger.

PB

Post Base

The PB post base provides a connection between a post (or column) for decks, patio covers and other top-supported structures.

PBS

Post Base

PBS post base provides a connection between a post (or column) for decks, patio covers and other top-supported structures. It has a 1" standoff to reduce potential decay of post and column ends.

Simpson Strong-Tie Strapping

Strapping is recommended wherever conventional anchors or fastening systems cannot be used.

LSTHD/STHD

Strap-Tie Holdowns

Strap-Tie Holdowns

Holdowns and Tension Ties for Cold-Formed Steel Construction

Embedded strap-tie holdowns that provide high load capacity and mount on concrete forms for easy installation. Designed to minimize concrete spalling.

LTT/HTT

Tension Ties

Tension Ties

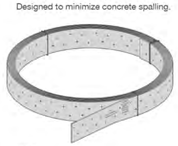
Tension ties are a time-saving solution for resisting tension loads in vertical and horizontal applications. Fastened with nails, they are simpler and faster to install than traditional holdowns.

HRS/ST/FHA/PS/LSTA/LSTI/MST/MSTA/MSTC/MSTI

Strap Ties

Lateral Connectors, Ties and Straps for Cold-Formed Steel Construction

Ideal for a wide variety of applications, our straps are load rated and provide the correct thickness and number of fasteners the specifier is looking for compared with field fabricated straps.



CMST

Coiled Medium Strap Tie

Coiled Straps

Lateral Connectors, Ties and Straps for Cold-Formed Steel Construction

The CMST is a continuous utility strap designed to resist tension and uplift loads. This coiled strap can be cut to length on the jobsite and used in a double 2x stud or post application.

CS

Coiled Strap

Coiled Straps

Lateral Connectors, Ties and Straps for Cold-Formed Steel Construction

Bridging and Bracing Connectors for Cold-Formed Steel Construction

The CS is a continuous utility strap designed to resist tension and uplift loads. This coiled strap can be cut to length on the job site and used in a single 2x stud or post application.

MSTAM/MSTCM

Strap Ties

Straight Straps for Masonry

Straight Straps for Plated Truss

Designed to resist tension loads for wood-to-masonry uplift applications. Install with nails and our Titen® 2 concrete and masonry screws.

GUARD DETAILS

Figure 24. Example Guard Detail.

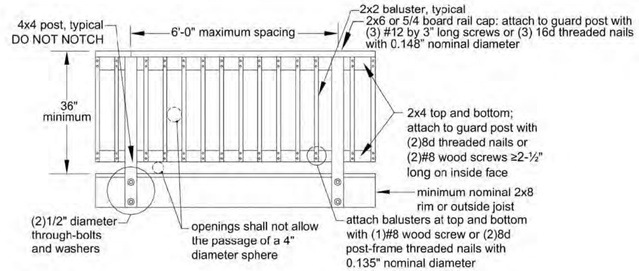


Figure 25. Guard Post to Outside-Joist Example.

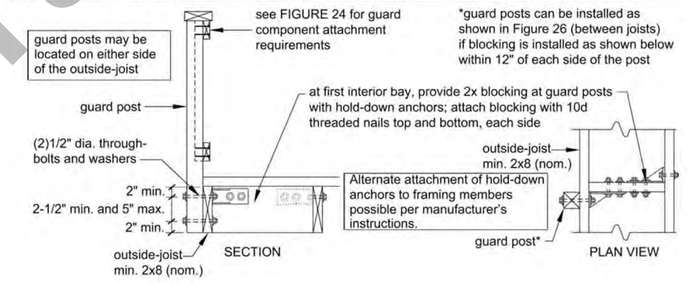


Figure 26. Guard Post to Rim Joist Example.

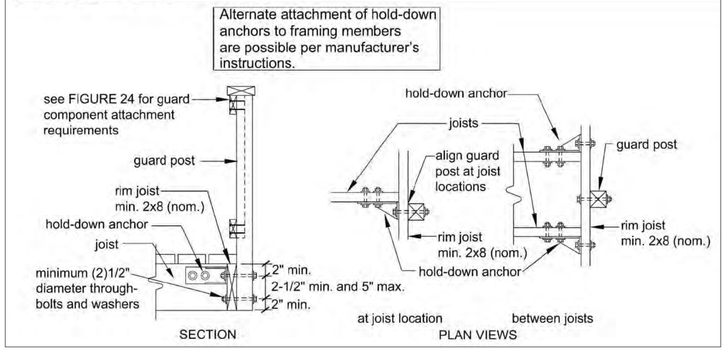
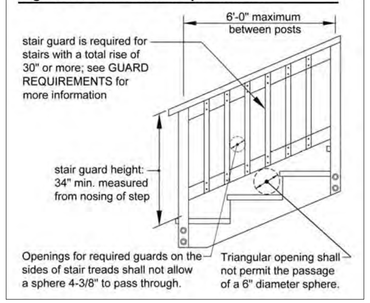


Figure 30. Stair Guard Requirements.



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DECK/PORCH

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F-4

DOORS & WINDOWS

NUMBERING SCHEME

The numbering scheme used by the Door & Window schedules (Tables 4 & 5) are computer generated and therefore may not be in sequential order. As such, some numbers may appear to be missing.

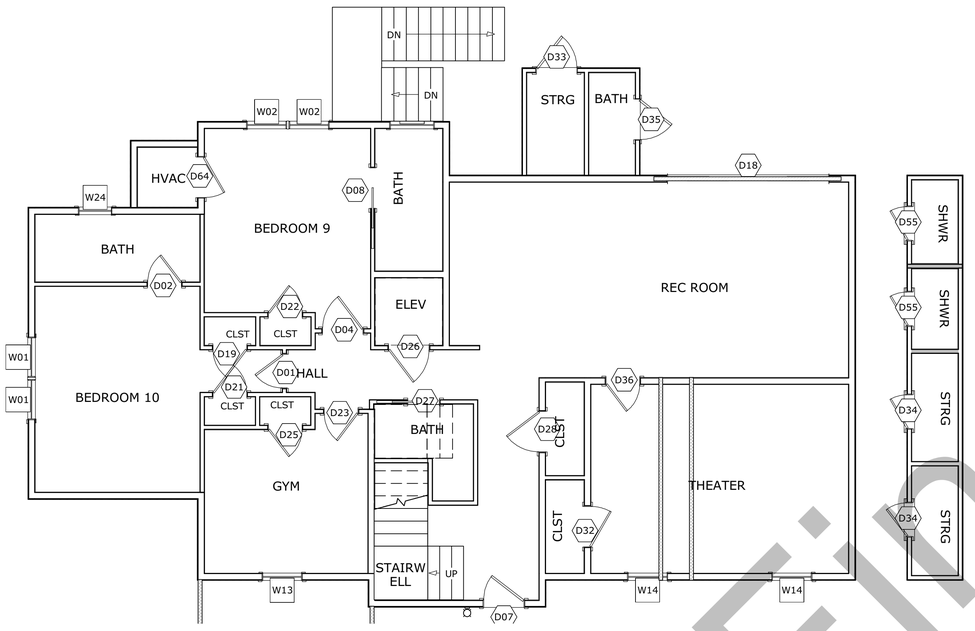
NOTICE TO THE MATERIALS PROVIDER

- The **Materials Provider SHALL** verify **Egress** and **Tempering** requirements.
- The **Materials Provider SHALL** provide the manufacturer's **rough opening specifications**.

NOTICE TO THE HOMEOWNER

The **Homeowner SHALL** verify door **selections, sizes, mulled units, and locations** match those given in **Tables 4 and 5 and applicable floor plans**.

*** See Sheets A-3 for Door & Window Notes ***



DOOR & WINDOW PLAN, 1st LEVEL, 3/16" SCALE
(See Sheets A-3 for Door & Window Notes)

TABLE 4 - DOOR SCHEDULE

NUMBER	QTY	WIDTH	HEIGHT	DESCRIPTION - STYLE	TEMPERED	FIRE	COMMENTS	FLOOR	ROOM NAME
D01	1	30 "	80 "	HINGED-DOOR P05				1	BEDROOM 10/HALL
D02	1	30 "	80 "	HINGED-DOOR P05				1	BATH/BEDROOM 10
D03	1	25 "	80 "	HINGED-DOOR P05				3	CLST/BEDROOM 3
D04	1	36 "	80 "	HINGED-DOOR P05				1	HALL/BEDROOM 9
D05	1	24 "	80 "	HINGED-DOOR P05				2	BEDROOM 4/CLST
D06	1	15 "	80 "	HINGED-DOOR P05				2	DEN/LIN
D07	1	36 "	80 "	EXT. HINGED-DOOR P05				1	REC ROOM
D08	1	36 "	80 "	POCKET-DOOR P05				1	BATH/BEDROOM 9
D09	1	64 1/16 "	94 "	MULLED UNIT			36X80 DOOR, W/ 12X80 SIDELISHTS AND 674X12 TRANSOM LIGHT	2	FOYER/DECK
D10	1	71 "	80 "	SLIDER-GLASS PANEL	YES			2	BEDROOM 6/DECK
D11	1	60 "	80 "	SLIDER-GLASS PANEL	YES			3	BEDROOM 3/DECK
D12	1	126 "	80 "	MULLED UNIT			4 EACH 30X80 DOORS. FRENCH INNER DOORS. FIXED OUTER DOORS.	3	/DECK
D13	1	24 "	80 "	HINGED-DOOR P05				3	MASTER BATH/WC
D14	1	60 "	80 "	SLIDER-GLASS PANEL	YES			2	BEDROOM 7/DECK
D15	1	120 "	80 "	QUAD SLIDER-GLASS PANEL	YES			2	DEN/DECK
D16	1	72 "	80 "	DOUBLE HINGED-GLASS PANEL	YES			2	BEDROOM 8/DECK
D17	1	60 "	80 "	DOUBLE HINGED-DOOR P05				2	DEN/LAUNDRY
D18	1	144 "	86 "	QUAD SLIDER-GLASS PANEL	YES			1	REC ROOM
D19	1	30 "	80 "	HINGED-DOOR P05				1	BEDROOM 10/CLST
D20	1	30 "	80 "	HINGED-DOOR P05				3	HALL/BEDROOM 2
D21	1	30 "	80 "	HINGED-DOOR P05				1	CLST/BEDROOM 10
D22	1	30 "	80 "	HINGED-DOOR P05				1	CLST/BEDROOM 9
D23	1	30 "	80 "	HINGED-DOOR P05				1	HALL/GYM
D24	1	36 "	80 "	HINGED-DOOR P05				2	HALL/ELEV
D25	1	30 "	80 "	HINGED-DOOR P05				1	GYM/CLST
D26	1	36 "	80 "	HINGED-DOOR P05				1	HALL/ELEV
D27	1	28 "	80 "	POCKET-DOOR P05				1	BATH/HALL
D28	1	36 "	80 "	HINGED-DOOR P05				1	CLST/REC ROOM
D29	1	36 "	80 "	HINGED-DOOR P05				2	HALL/BEDROOM 5
D30	1	30 "	80 "	HINGED-DOOR P05				2	BATH/BEDROOM 6
D31	1	60 "	80 "	SLIDER-GLASS PANEL	YES			3	DINING/DECK
D32	1	36 "	80 "	HINGED-DOOR P05				1	CLST/THEATER
D33	1	36 "	80 "	EXT. HINGED-DOOR P05				1	STRG
D34	2	30 "	80 "	HINGED-DOOR P05				1	STRG/UNSPECIFIED
D35	1	36 "	80 "	EXT. HINGED-DOOR P05				1	BATH
D36	1	30 "	80 "	HINGED-DOOR P05				1	THEATER/REC ROOM
D37	1	30 "	80 "	HINGED-DOOR P05				2	CLST/BEDROOM 6
D38	1	30 "	80 "	HINGED-DOOR P05				2	BATH/BEDROOM 5
D39	1	71 "	80 "	SLIDER-GLASS PANEL	YES			3	BEDROOM 2/DECK
D40	1	30 "	80 "	HINGED-DOOR P05				2	BATH/BEDROOM 7
D41	1	30 "	80 "	HINGED-DOOR P05				2	CLST/BEDROOM 5
D42	1	30 "	80 "	HINGED-DOOR P05				2	BEDROOM 6/HALL
D43	1	30 "	80 "	HINGED-DOOR P05				2	BEDROOM 7/HALL
D44	1	25 "	80 "	HINGED-DOOR P05				2	CLST/BEDROOM 7
D45	1	30 "	80 "	HINGED-DOOR P05				2	LAV/FOYER
D46	1	72 "	80 "	SLIDER-GLASS PANEL	YES			2	BEDROOM 4/DECK
D47	1	30 "	80 "	HINGED-DOOR P05				2	BATH/BEDROOM 8
D48	1	30 "	80 "	HINGED-DOOR P05				2	DEN/BEDROOM 8
D49	1	30 "	80 "	HINGED-DOOR P05				2	BEDROOM 4/DEN
D50	1	30 "	80 "	HINGED-DOOR P05				2	CLST/BEDROOM 8
D51	1	30 "	80 "	HINGED-DOOR P05				2	BEDROOM 4/BATH
D52	1	30 "	80 "	HINGED-DOOR P05				3	BATH/BEDROOM 2
D53	1	30 "	80 "	HINGED-DOOR P05				3	
D54	1	34 "	80 "	HINGED-DOOR P05				3	MASTER BATH/MASTER BDRM
D55	2	30 "	80 "	HINGED-DOOR P05				1	SHWR/UNSPECIFIED
D56	1	30 "	80 "	HINGED-DOOR P05				3	BATH/BEDROOM 3
D57	1	34 "	80 "	HINGED-DOOR P05				3	HALL/MASTER BDRM
D58	1	30 "	80 "	HINGED-DOOR P05				3	CLST/MASTER BDRM
D59	1	30 "	80 "	HINGED-DOOR P05				3	BEDROOM 3/HALL
D60	1	30 "	80 "	HINGED-DOOR P05				3	HALL/BATH
D61	1	36 "	80 "	HINGED-DOOR P05				3	HALL/ELEV
D62	1	36 "	80 "	EXT. HINGED-DOOR P05				1	UNSPECIFIED
D63	1	30 "	80 "	HINGED-DOOR P05				2	CLST/FOYER
D64	1	36 "	80 "	HINGED-DOOR P05			INSULATED	1	BEDROOM 9/HVAC
D65	1	36 "	80 "	HINGED-DOOR P05			INSULATED	2	BEDROOM 5/HVAC
D66	1	36 "	80 "	HINGED-DOOR P05			INSULATED	3	MASTER BDRM/HVAC
D67	1	72 "	80 "	SLIDER-GLASS PANEL	YES			3	DINING/DECK
D68	1	30 "	80 "	EXT. HINGED-DOOR P05				3	STRG/DECK

TABLE 5 - WINDOW SCHEDULE

NUMBER	QTY	WIDTH	HEIGHT	DESCRIPTION	BOTTOM	TOP	EGRESS	TEMPERED	COMMENTS	FLOOR	ROOM NAME
W01	2	36 "	60 "	DOUBLE HUNG	20"	80"	YES			1	BEDROOM 10
W02	2	36 "	60 "	DOUBLE HUNG	20"	80"	YES			1	BEDROOM 9
W03	1	52 "	44 "	DOUBLE HUNG	36"	80"				3	KITCHEN/DECK
W04	4	30 "	60 "	DOUBLE HUNG	20"	80"				3	OPEN BELOW/DECK
W05	1	30 "	30 "	DOUBLE HUNG	50"	80"				2	BATH
W06	4	24 "	15 "	FIXED GLASS	91 1/2"	106 1/2"				3	/DECK
W07	1	36 "	15 "	FIXED GLASS	91 1/2"	106 1/2"	YES			3	BEDROOM 3
W08	2	36 "	60 "	DOUBLE HUNG	20"	80"	YES			2	BEDROOM 7
W09	2	36 "	60 "	DOUBLE HUNG	20"	80"	YES			3	MASTER BDRM
W10	1	36 "	60 "	DOUBLE HUNG	20"	80"				3	BEDROOM 3
W11	2	36 "	60 "	DOUBLE HUNG	20"	80"	YES			2	BEDROOM 6
W12	1	40 "	20 "	SINGLE AWNING	60"	80"				1	BATH
W13	1	36 "	60 "	DOUBLE HUNG	20"	80"	YES			1	GYM
W14	2	36 "	60 "	DOUBLE HUNG	20"	80"	YES			1	THEATER
W15	2	36 "	60 "	DOUBLE HUNG	20"	80"				2	BEDROOM 5
W16	2	36 "	60 "	DOUBLE HUNG	20"	80"	YES			2	BEDROOM 8/DECK
W17	2	30 "	60 "	DOUBLE HUNG	20"	80"				3	GREAT ROOM/DECK
W18	1	30 "	60 "	DOUBLE HUNG	20"	80"				3	MASTER BATH
W19	2	36 "	60 "	DOUBLE HUNG	20"	80"	YES			3	BEDROOM 2
W20	4	30 "	60 "	DOUBLE HUNG	20"	80"				3	DINING
W21	1	36 "	15 "	FIXED GLASS	91 1/2"	106 1/2"				3	BEDROOM 3
W22	4	16 "	22 "	FIXED GLASS	14 1/2"	36 1/2"				4	
W24	1	30 "	30 "	DOUBLE HUNG	50"	80"				1	BATH
W26	1	30 "	30 "	DOUBLE HUNG	50"	80"				3	BATH
W27	1	40 "	20 "	SINGLE AWNING	60"	80"				2	BATH
W28	1	36 "	60 "	DOUBLE HUNG	20"	80"	YES			3	BEDROOM 3

Drawing comply with the 2018 Virginia Uniform Statewide Building Code (USBC).

Authority: 2018 Virginia Building and Fire Code Related Laws Package § 54.1-402.

DOOR AND WINDOW SCHEDULES

DRAWINGS PROVIDED BY:
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DATE:

10/16/2022

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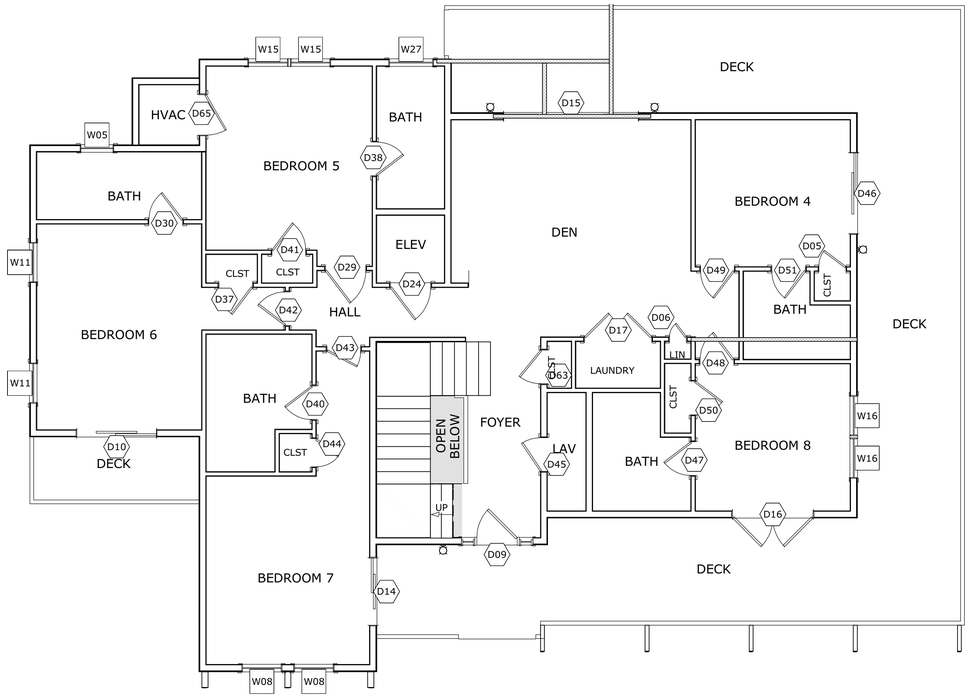
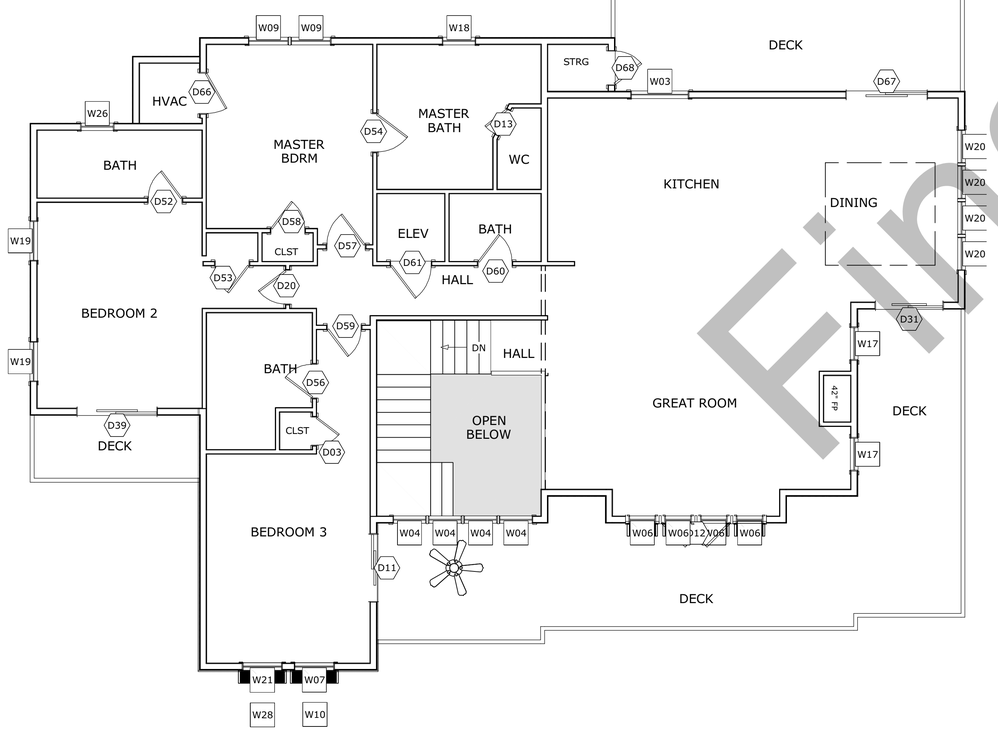


DOOR & WINDOW PLAN, 2nd LEVEL, 3/16" SCALE
(See Sheets A-3 for Door & Window Notes)



DOOR & WINDOW PLAN, 3rd LEVEL, 3/16" SCALE
(See Sheets A-3 for Door & Window Notes)

TABLE 4 - DOOR SCHEDULE

NUMBER	QTY	WIDTH	HEIGHT	DESCRIPTION - STYLE	TEMPERED	FIRE	COMMENTS	FLOOR	ROOM NAME
D01	1	30 "	80 "	HINGED-DOOR P05				1	BEDROOM 10/HALL
D02	1	30 "	80 "	HINGED-DOOR P05				1	BATH/BEDROOM 10
D03	1	25 "	80 "	HINGED-DOOR P05				3	CLST/BEDROOM 3
D04	1	36 "	80 "	HINGED-DOOR P05				1	HALL/BEDROOM 9
D05	1	24 "	80 "	HINGED-DOOR P05				2	BEDROOM 4/CLST
D06	1	15 "	80 "	HINGED-DOOR P05				2	DEN/LIN
D07	1	36 "	80 "	EXT. HINGED-DOOR P05				1	REC ROOM
D08	1	36 "	80 "	POCKET-DOOR P05				1	BATH/BEDROOM 9
D09	1	64 1/16 "	94 "	MULLED UNIT			36X80 DOOR, W/ 12X80 SIDELISHTS AND 674X12 TRANSOM LIGHT	2	FOYER/DECK
D10	1	71 "	80 "	SLIDER-GLASS PANEL	YES			2	BEDROOM 6/DECK
D11	1	60 "	80 "	SLIDER-GLASS PANEL	YES			3	BEDROOM 3/DECK
D12	1	126 "	80 "	MULLED UNIT			4 EACH 30X80 DOORS. FRENCH INNER DOORS. FIXED OUTER DOORS.	3	/DECK
D13	1	24 "	80 "	HINGED-DOOR P05				3	MASTER BATH/WC
D14	1	60 "	80 "	SLIDER-GLASS PANEL	YES			2	BEDROOM 7/DECK
D15	1	120 "	80 "	QUAD SLIDER-GLASS PANEL	YES			2	DEN/DECK
D16	1	72 "	80 "	DOUBLE HINGED-GLASS PANEL	YES			2	BEDROOM 8/DECK
D17	1	60 "	80 "	DOUBLE HINGED-DOOR P05				2	DEN/LAUNDRY
D18	1	144 "	86 "	QUAD SLIDER-GLASS PANEL	YES			1	REC ROOM
D19	1	30 "	80 "	HINGED-DOOR P05				1	BEDROOM 10/CLST
D20	1	30 "	80 "	HINGED-DOOR P05				3	HALL/BEDROOM 2
D21	1	30 "	80 "	HINGED-DOOR P05				1	CLST/BEDROOM 10
D22	1	30 "	80 "	HINGED-DOOR P05				1	CLST/BEDROOM 9
D23	1	30 "	80 "	HINGED-DOOR P05				1	HALL/GYM
D24	1	36 "	80 "	HINGED-DOOR P05				2	HALL/ELEV
D25	1	30 "	80 "	HINGED-DOOR P05				1	GYM/CLST
D26	1	36 "	80 "	HINGED-DOOR P05				1	HALL/ELEV
D27	1	28 "	80 "	POCKET-DOOR P05				1	BATH/HALL
D28	1	36 "	80 "	HINGED-DOOR P05				1	CLST/REC ROOM
D29	1	36 "	80 "	HINGED-DOOR P05				2	HALL/BEDROOM 5
D30	1	30 "	80 "	HINGED-DOOR P05				2	BATH/BEDROOM 6
D31	1	60 "	80 "	SLIDER-GLASS PANEL	YES			3	DINING/DECK
D32	1	36 "	80 "	HINGED-DOOR P05				1	CLST/THEATER
D33	1	36 "	80 "	EXT. HINGED-DOOR P05				1	STRG
D34	2	30 "	80 "	HINGED-DOOR P05				1	STRG/UNSPECIFIED
D35	1	36 "	80 "	EXT. HINGED-DOOR P05				1	BATH
D36	1	30 "	80 "	HINGED-DOOR P05				1	THEATER/REC ROOM
D37	1	30 "	80 "	HINGED-DOOR P05				2	CLST/BEDROOM 6
D38	1	30 "	80 "	HINGED-DOOR P05				2	BATH/BEDROOM 5
D39	1	71 "	80 "	SLIDER-GLASS PANEL	YES			3	BEDROOM 2/DECK
D40	1	30 "	80 "	HINGED-DOOR P05				2	BATH/BEDROOM 7
D41	1	30 "	80 "	HINGED-DOOR P05				2	CLST/BEDROOM 5
D42	1	30 "	80 "	HINGED-DOOR P05				2	BEDROOM 6/HALL
D43	1	30 "	80 "	HINGED-DOOR P05				2	BEDROOM 7/HALL
D44	1	25 "	80 "	HINGED-DOOR P05				2	CLST/BEDROOM 7
D45	1	30 "	80 "	HINGED-DOOR P05				2	LAV/FOYER
D46	1	72 "	80 "	SLIDER-GLASS PANEL	YES			2	BEDROOM 4/DECK
D47	1	30 "	80 "	HINGED-DOOR P05				2	BATH/BEDROOM 8
D48	1	30 "	80 "	HINGED-DOOR P05				2	DEN/BEDROOM 8
D49	1	30 "	80 "	HINGED-DOOR P05				2	BEDROOM 4/DEN
D50	1	30 "	80 "	HINGED-DOOR P05				2	CLST/BEDROOM 8
D51	1	30 "	80 "	HINGED-DOOR P05				2	BEDROOM 4/BATH
D52	1	30 "	80 "	HINGED-DOOR P05				3	BATH/BEDROOM 2
D53	1	30 "	80 "	HINGED-DOOR P05				3	
D54	1	34 "	80 "	HINGED-DOOR P05				3	MASTER BATH/MASTER BDRM
D55	2	30 "	80 "	HINGED-DOOR P05				1	SHWR/UNSPECIFIED
D56	1	30 "	80 "	HINGED-DOOR P05				3	BATH/BEDROOM 3
D57	1	34 "	80 "	HINGED-DOOR P05				3	HALL/MASTER BDRM
D58	1	30 "	80 "	HINGED-DOOR P05				3	CLST/MASTER BDRM
D59	1	30 "	80 "	HINGED-DOOR P05				3	BEDROOM 3/HALL
D60	1	30 "	80 "	HINGED-DOOR P05				3	HALL/BATH
D61	1	36 "	80 "	HINGED-DOOR P05				3	HALL/ELEV
D62	1	36 "	80 "	EXT. HINGED-DOOR P05				1	UNSPECIFIED
D63	1	30 "	80 "	HINGED-DOOR P05				2	CLST/FOYER
D64	1	36 "	80 "	HINGED-DOOR P05			INSULATED	1	BEDROOM 9/HVAC
D65	1	36 "	80 "	HINGED-DOOR P05			INSULATED	2	BEDROOM 5/HVAC
D66	1	36 "	80 "	HINGED-DOOR P05			INSULATED	3	MASTER BDRM/HVAC
D67	1	72 "	80 "	SLIDER-GLASS PANEL	YES			3	DINING/DECK
D68	1	30 "	80 "	EXT. HINGED-DOOR P05				3	STRG/DECK

TABLE 5 - WINDOW SCHEDULE

NUMBER	QTY	WIDTH	HEIGHT	DESCRIPTION	BOTTOM	TOP	EGRESS	TEMPERED	COMMENTS	FLOOR	ROOM NAME
W01	2	36 "	60 "	DOUBLE HUNG	20"	80"	YES			1	BEDROOM 10
W02	2	36 "	60 "	DOUBLE HUNG	20"	80"	YES			1	BEDROOM 9
W03	1	52 "	44 "	DOUBLE HUNG	36"	80"				3	KITCHEN/DECK
W04	4	30 "	60 "	DOUBLE HUNG	20"	80"				3	OPEN BELOW/DECK
W05	1	30 "	30 "	DOUBLE HUNG	50"	80"				2	BATH
W06	4	24 "	15 "	FIXED GLASS	91 1/2"	106 1/2"				3	/DECK
W07	1	36 "	15 "	FIXED GLASS	91 1/2"	106 1/2"	YES			3	BEDROOM 3
W08	2	36 "	60 "	DOUBLE HUNG	20"	80"	YES			2	BEDROOM 7
W09	2	36 "	60 "	DOUBLE HUNG	20"	80"	YES			3	MASTER BDRM
W10	1	36 "	60 "	DOUBLE HUNG	20"	80"				3	BEDROOM 3
W11	2	36 "	60 "	DOUBLE HUNG	20"	80"	YES			2	BEDROOM 6
W12	1	40 "	20 "	SINGLE AWNING	60"	80"				1	BATH
W13	1	36 "	60 "	DOUBLE HUNG	20"	80"	YES			1	GYM
W14	2	36 "	60 "	DOUBLE HUNG	20"	80"	YES			1	THEATER
W15	2	36 "	60 "	DOUBLE HUNG	20"	80"				2	BEDROOM 5
W16	2	36 "	60 "	DOUBLE HUNG	20"	80"	YES			2	BEDROOM 8/DECK
W17	2	30 "	60 "	DOUBLE HUNG	20"	80"				3	GREAT ROOM/DECK
W18	1	30 "	60 "	DOUBLE HUNG	20"	80"				3	MASTER BATH
W19	2	36 "	60 "	DOUBLE HUNG	20"	80"	YES			3	BEDROOM 2
W20	4	30 "	60 "	DOUBLE HUNG	20"	80"				3	DINING
W21	1	36 "	15 "	FIXED GLASS	91 1/2"	106 1/2"				3	BEDROOM 3
W22	4	16 "	22 "	FIXED GLASS	14 1/2"	36 1/2"				4	
W24	1	30 "	30 "	DOUBLE HUNG	50"	80"				1	BATH
W26	1	30 "	30 "	DOUBLE HUNG	50"	80"				3	BATH
W27	1	40 "	20 "	SINGLE AWNING	60"	80"				2	BATH
W28	1	36 "	60 "	DOUBLE HUNG	20"	80"	YES			3	BEDROOM 3

Drawing comply with the 2018 Virginia Uniform Statewide Building Code (USBC).

Authority: 2018 Virginia Building and Fire Code Related Laws Package § 54.1-402.

DOOR AND WINDOW SCHEDULES

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10/16/2022

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FASTENING SCHEDULE

TABLE R602.3(1)
FASTENING SCHEDULE

ITEM	DESCRIPTION OF BUILDING ELEMENTS	NUMBER AND TYPE OF FASTENER[a, b, c]	SPACING AND LOCATION
	Roof		
1	Blocking between ceiling joists or rafters to top plate	4-8d box (2½" × 0.113"); or 3-8d common (2½" × 0.131"); or 3-10d box (3" × 0.128"); or 3-3" × 0.131" nails	Toe nail
2	Ceiling joists to top plate	4-8d box (2½" × 0.113"); or 3-8d common (2½" × 0.131"); or 3-10d box (3" × 0.128"); or 3-3" × 0.131" nails	Per joist, toe nail
3	Ceiling joist not attached to parallel rafter, laps over partitions [see Sections R802.3.1, R802.3.2 and Table R802.5.1(9)]	4-10d box (3" × 0.128"); or 3-16d common (3½" × 0.162"); or 4-3" × 0.131" nails	Face nail
4	Ceiling joist attached to parallel rafter (heel joint) [see Sections R802.3.1 and R802.3.2 and Table R802.5.1(9)]	Table R802.5.2	Face nail
5	Collar tie to rafter, face nail or 1½" × 20 ga. ridge strap to rafter	4-10d box (3" × 0.128"); or 3-10d common (3" × 0.148"); or 4-3" × 0.131" nails	Face nail each rafter
6	Rafter or roof truss to plate	3-16d box nails (3½" × 0.135"); or 3-10d common nails (3" × 0.148"); or 4-10d box (3" × 0.128"); or 4-3" × 0.131" nails	2 toe nails on one side and 1 toe nail on opposite side of each rafter or truss[i]
7	Roof rafters to ridge, valley or hip rafters or roof rafter to minimum 2" ridge beam	4-16d (3½" × 0.135"); or 3-10d common (3½" × 0.148"); or 4-10d box (3" × 0.128"); or 4-3" × 0.131" nails	Toe nail
		3-16d box 3½" × 0.135"); or 2-16d common (3½" × 0.162"); or 3-10d box (3" × 0.128"); or 3-3" × 0.131" nails	End nail
	Wall		
8	Stud to stud (not at braced wall panels)	16d common (3½" × 0.162")	24" o.c. face nail
		10d box (3" × 0.128"); or 3" × 0.131" nails	16" o.c. face nail
9	Stud to stud and abutting studs at intersecting wall corners (at braced wall panels)	16d box (3½" × 0.135"); or 3" × 0.131" nails	12" o.c. face nail
		16d common (3½" × 0.162")	16" o.c. face nail
10	Built-up header (2" to 2" header with ½" spacer)	16d common (3½" × 0.162")	16" o.c. each edge face nail
		16d box (3½" × 0.135")	12" o.c. each edge face nail
11	Continuous header to stud	5-8d box (2½" × 0.113"); or 4-8d common (2½" × 0.131"); or 4-10d box (3" × 0.128")	Toe nail
12	Top plate to top plate	16d common (3½" × 0.162")	16" o.c. face nail
		10d box (3" × 0.128"); or 3" × 0.131" nails	12" o.c. face nail
13	Double top plate splice for SDCs A-D_2 with seismic braced wall line spacing < 25'	8-16d common (3½" × 0.162"); or 12-16d box (3½" × 0.135"); or 12-10d box (3" × 0.128"); or 12-3" × 0.131" nails	Face nail on each side of end joint (minimum 24" lap splice length each side of end joint)
	Double top plate splice SDCs D_0, D_1, or D_2 and braced wall line spacing ≥ 25'	12-16d (3½" × 0.135")	

(continued)

TABLE R602.3(1)—continued
FASTENING SCHEDULE

ITEM	DESCRIPTION OF BUILDING ELEMENTS	NUMBER AND TYPE OF FASTENER[a, b, c]	SPACING AND LOCATION
14	Bottom plate to joist, rim joist, band joist or blocking (not at braced wall panels)	16d common (3½" × 0.162")	16" o.c. face nail
		16d box (3½" × 0.135"); or 3" × 0.131" nails	12" o.c. face nail
15	Bottom plate to joist, rim joist, band joist or blocking (at braced wall panel)	3-16d box (3½" × 0.135"); or 2-16d common (3½" × 0.162"); or 4-3" × 0.131" nails	3 each 16" o.c. face nail 2 each 16" o.c. face nail 4 each 16" o.c. face nail
16	Top or bottom plate to stud	4-8d box (2½" × 0.113"); or 3-16d box (3½" × 0.135"); or 4-8d common (2½" × 0.131"); or 4-10d box (3" × 0.128"); or 4-3" × 0.131" nails	Toe nail
		3-16d box (3½" × 0.135"); or 2-16d common (3½" × 0.162"); or 3-10d box (3" × 0.128"); or 3-3" × 0.131" nails	End nail
17	Top plates, laps at corners and intersections	3-10d box (3" × 0.128"); or 2-16d common (3½" × 0.162"); or 3-3" × 0.131" nails	Face nail
18	1" brace to each stud and plate	3-8d box (2½" × 0.113"); or 2-8d common (2½" × 0.131"); or 2-10d box (3" × 0.128"); or 2 staples 1½"	Face nail
19	1" × 6" sheathing to each bearing	3-8d box (2½" × 0.113"); or 2-8d common (2½" × 0.131"); or 2-10d box (3" × 0.128"); or 2 staples, 1" crown, 16 ga., 1½" long	Face nail
20	1" × 8" and wider sheathing to each bearing	3-8d box (2½" × 0.113"); or 2-8d common (2½" × 0.131"); or 3-10d box (3" × 0.128"); or 3 staples, 1" crown, 16 ga., 1½" long	Face nail
		Wider than 1" × 8" 4-8d box (2½" × 0.113"); or 3-8d common (2½" × 0.131"); or 3-10d box (3" × 0.128"); or 4 staples, 1" crown, 16 ga., 1½" long	
	Floor		
21	Joist to sill, top plate or girder	4-8d box (2½" × 0.113"); or 3-8d common (2½" × 0.131"); or 3-10d box (3" × 0.128"); or 3-3" × 0.131" nails	Toe nail
		8d box (2½" × 0.113")	4" o.c. toe nail
22	Rim joist, band joist or blocking to sill or top plate (roof applications also)	8d common (2½" × 0.131"); or 10d box (3" × 0.128"); or 3" × 0.131" nails	6" o.c. toe nail
23	1" × 6" subfloor or less to each joist	3-8d box (2½" × 0.113"); or 2-8d common (2½" × 0.131"); or 3-10d box (3" × 0.128"); or 2 staples, 1" crown, 16 ga., 1½" long	Face nail

(continued)

TABLE 602.3(1)
FASTENING SCHEDULE—continued

ITEM	DESCRIPTION OF BUILDING ELEMENTS	NUMBER AND TYPE OF FASTENER[a, b, c]	SPACING AND LOCATION
	Floor		
24	2" subfloor to joist or girder	3-16d box (3½" × 0.135"); or 2-16d common (3½" × 0.162")	Blind and face nail
25	2" planks (plank & beam—floor & roof)	3-16d box (3½" × 0.135"); or 2-16d common (3½" × 0.162")	At each bearing, face nail
26	Band or rim joist to joist	3-16d common (3½" × 0.162") 4-10 box (3" × 0.128"), or 4-3" × 0.131" nails; or 4-3" × 14 ga. staples, 7/16" crown	End nail
27	Built-up girders and beams, 2-inch lumber layers	20d common (4" × 0.192"); or	Nail each layer as follows: 32" o.c. at top and bottom and staggered.
		10d box (3" × 0.128"); or 3" × 0.131" nails	24" o.c. face nail at top and bottom staggered on opposite sides
		And: 2-20d common (4" × 0.192"); or 3-10d box (3" × 0.128"); or 3-3" × 0.131" nails	Face nail at ends and at each splice
28	Ledger strip supporting joists or rafters	4-16d box (3½" × 0.135"); or 3-16d common (3½" × 0.162"); or 4-10d box (3" × 0.128"); or 4-3" × 0.131" nails	At each joist or rafter, face nail
29	Bridging to joist	2-10d (3" × 0.128")	Each end, toe nail

ITEM	DESCRIPTION OF BUILDING ELEMENTS	NUMBER AND TYPE OF FASTENER[a, b, c]	SPACING OF FASTENERS	
			Edges (inches)[d]	Intermediate supports[e, f] (inches)
	Wood structural panels, subfloor, roof and interior wall sheathing to framing and particleboard wall sheathing to framing [see Table R602.3(3) for wood structural panel exterior wall sheathing to wall framing]			
30	3/8" – 1/2"	6d common (2" × 0.113") nail (subfloor, wall)/ 8d common (2½" × 0.131") nail (roof)	6	12[f]
31	19/32" – 1"	8d common nail (2½" × 0.131")	6	12[f]
32	1 1/4" – 1 1/4"	10d common (3" × 0.148") nail; or 8d (2½" × 0.131") deformed nail	6	12
	Other wall sheathing[g]			
33	1/2" structural cellulosic fiberboard sheathing	1½" galvanized roofing nail, 7/16" head diameter, or 1" crown staple 16 ga., 1½" long	3	6
34	25/32" structural cellulosic fiberboard sheathing	1½" galvanized roofing nail, 7/16" head diameter, or 1" crown staple 16 ga., 1½" long	3	6
35	1/2" gypsum sheathing[g]	1½" galvanized roofing nail; staple galvanized, 1½" long; 1½" screws, Type W or S	7	7
36	5/8" gypsum sheathing[g]	1¾" galvanized roofing nail; staple galvanized, 1¾" long; 1½" screws, Type W or S	7	7
	Wood structural panels, combination subfloor underlayment to framing			
37	1/4" and less	6d deformed (2" × 0.120") nail; or 8d common (2½" × 0.131") nail	6	12
38	7/16" – 1"	8d common (2½" × 0.131") nail; or 8d deformed (2½" × 0.120") nail	6	12
39	1 1/8" – 1 1/4"	10d common (3" × 0.148") nail; or 8d deformed (2½" × 0.120") nail	6	12

For SI: 1 inch = 25.4 mm, 1 foot = 304.8 mm. 1 mile per hour = 0.447 m/s; 1 ksi = 6.895 MPa.

(continued)

TABLE R602.3(1)—continued
FASTENING SCHEDULE

a. Nails are smooth-common, box or deformed shanks except where otherwise stated. Nails used for framing and sheathing connections shall have minimum average bending yield strengths as shown: 80 ksi for shank diameter of 0.192 inch (20d common nail), 90 ksi for shank diameters larger than 0.142 inch but not larger than 0.177 inch, and 100 ksi for shank diameters of 0.142 inch or less.
b. Staples are 16 gage wire and have a minimum 7/16-inch on diameter crown width.
c. Nails shall be spaced at not more than 6 inches on center at all supports where spans are 48 inches or greater.
d. Four-foot by 8-foot or 4-foot by 9-foot panels shall be applied vertically.
e. Spacing of fasteners not included in this table shall be based on Table R602.3(2).
f. Where the ultimate design wind speed is 130 mph or less, nails for attaching wood structural panel roof sheathing to gable end wall framing shall be spaced 6 inches on center. Where the ultimate design wind speed is greater than 130 mph, nails for attaching panel roof sheathing to intermediate supports shall be spaced 6 inches on center for minimum 48-inch distance from ridges, eaves and gable end walls; and 4 inches on center to gable end wall framing.
g. Gypsum sheathing shall conform to ASTM C1396 and shall be installed in accordance with GA 253. Fiberboard sheathing shall conform to ASTM C208.
h. Spacing of fasteners on floor sheathing panel edges applies to panel edges supported by framing members and required blocking and at floor perimeters only. Spacing of fasteners on roof sheathing panel edges applies to panel edges supported by framing members and required blocking. Blocking of roof or floor sheathing panel edges perpendicular to the framing members need not be provided except as required by other provisions of this code. Floor perimeter shall be supported by framing members or solid blocking.
i. Where a rafter is fastened to an adjacent parallel ceiling joist in accordance with this schedule, provide two toe nails on one side of the rafter and toe nails from the ceiling joist to top plate in accordance with this schedule. The toe nail on the opposite side of the rafter shall not be required.

STUD HEIGHT & SPACING

TABLE R602.3(5)
SIZE, HEIGHT AND SPACING OF WOOD STUDS[a]

STUD SIZE (inches)	BEARING WALLS					NONBEARING WALLS	
	Laterally unsupported stud height[a] (feet)	Maximum spacing when supporting a roof-ceiling assembly or a habitable attic assembly, only (inches)	Maximum spacing when supporting one floor, plus a roof-ceiling assembly or a habitable attic assembly (inches)	Maximum spacing when supporting two floors, plus a roof-ceiling assembly or a habitable attic assembly (inches)	Maximum spacing when supporting one floor height[a] (inches)	Laterally unsupported stud height[a] (feet)	Maximum spacing (inches)
2 × 4	10	24[c]	16[c]	—	24	14	24
2 × 6	10	24	24	16	24	20	24

For SI: 1 inch = 25.4 mm, 1 foot = 304.8 mm.
a. Listed heights are distances between points of lateral support placed perpendicular to the plane of the wall. Bearing walls shall be sheathed on not less than one side or bridging shall be installed not greater than 4 feet apart measured vertically from either end of the stud. Increases in unsupported height are permitted where in compliance with Exception 2 of Section R602.3.1 or designed in accordance with accepted engineering practice.
b. Shall not be used in exterior walls.
c. A *habitable attic* assembly supported by 2 × 4 studs is limited to a roof span of 32 feet. Where the roof span exceeds 32 feet, the wall studs shall be increased to 2 × 6 or the studs shall be designed in accordance with accepted engineering practice.

GIRDER/HEADER SPANS
EXTERIOR WALLS

TABLE R602.7(1)
GIRDER SPANS[a] AND HEADER SPANS[a] FOR EXTERIOR BEARING WALLS
(Maximum spans for Douglas Fir-larch, Hem-fir, Southern Pine and Spruce-pine-fir[b] and required n

GIRDERS AND HEADERS SUPPORTING	SIZE	Ground Snow Load (psf) 30 Building Width 12 Span[c]	12 NJ[d]	24 Span[c]	24 NJ[d]	36 Span[c]	36 NJ[d]
Roof and ceiling	1-2 × 6	4-0	1	3-1	2	2-7	2
	1-2 × 8	5-1	2	3-11	2	3-3	2
	1-2 × 10	6-0	2	4-8	2	3-11	2
	1-2 × 12	7-1	2	5-5	2	4-7	3
	2-2 × 4	4-0	1	3-1	1	2-7	1
	2-2 × 6	6-0	1	4-7	1	3-10	1
	2-2 × 8	7-7	1	5-9	1	4-10	2
	2-2 × 10	9-0	1	6-10	2	5-9	2
	2-2 × 12	10-7	2	8-1	2	6-10	2
	3-2 × 8	9-5	1	7-3	1	6-1	1
	3-2 × 10	11-3	1	8-7	1	7-3	2
	3-2 × 12	13-2	1	10-1	2	8-6	2
	4-2 × 8	10-11	1	8-4	1	7-0	1
	4-2 × 10	12-11	1	9-11	1	8-4	1
	4-2 × 12	15-3	1	11-8	1	9-10	2
Roof, ceiling and one center-bearing floor	1-2 × 6	3-3	1	2-7	2	2-2	2
	1-2 × 8	4-1	2	3-3	2	2-9	2
	1-2 × 10	4-11	2	3-10	2	3-3	3
	1-2 × 12	5-9	2	4-6	3	3-10	3
	2-2 × 4	3-3	1	2-6	1	2-2	1
	2-2 × 6	4-10	1	3-9	1	3-3	2
	2-2 × 8	6-1	1	4-10	2	4-1	2
	2-2 × 10	7-3	2	5-8	2	4-10	2
	2-2 × 12	8-6	2	6-8	2	5-8	2
	3-2 × 8	7-8	1	6-0	1	5-1	2
	3-2 × 10	9-1	1	7-2	2	6-1	2
	3-2 × 12	10-8	2	8-5	2	7-2	2
	4-2 × 8	8-10	1	6-11	1	5-11	1
	4-2 × 10	10-6	1	8-3	2	7-0	2
	4-2 × 12	12-4	1	9-8	2	8-3	2
Roof, ceiling and one clear span floor	1-2 × 6	2-11	2	2-3	2	1-11	2
	1-2 × 8	3-9	2	2-10	2	2-5	3
	1-2 × 10	4-5	2	3-5	3	2-10	3
	1-2 × 12	5-2	2	4-0	3	3-4	3
	2-2 × 4	2-11	1	2-3	1	1-10	1
	2-2 × 6	4-4	1	3-4	2	2-10	2
	2-2 × 8	5-6	2	4-3	2	3-7	2
	2-2 × 10	6-7	2	5-0	2	4-2	2
	2-2 × 12	7-9	2	5-11	2	4-11	3
	3-2 × 8	6-11	1	5-3	2	4-5	2
	3-2 × 10	8-3	2	6-3	2	5-3	2
	3-2 × 12	9-8	2	7-5	2	6-2	2
	4-2 × 8	8-0	1	6-1	1	5-1	2
	4-2 × 10	9-6	1	7-3	2	6-1	2
	4-2 × 12	11-2	2	8-6	2	7-2	2

(continued)

TABLE R602.7(1)—continued
GIRDER SPANS[a] AND HEADER SPANS[a] FOR EXTERIOR BEARING WALLS
(Maximum spans for Douglas Fir-larch, Hem-fir, Southern Pine and Spruce-pine-fir[b] and required number of jack studs)

GIRDERS AND HEADERS SUPPORTING	SIZE	Ground Snow Load (psf) 30 Building Width 12 Span[c]	12 NJ[d]	24 Span[c]	24 NJ[d]	36 Span[c]	36 NJ[d]
Roof, ceiling and two center-bearing floors	1-2 × 6	2-8	2	2-1	2	1-10	2
	1-2 × 8	3-5	2	2-8	2	2-4	3
	1-2 × 10	4-0	2	3-2	3	2-9	3
	1-2 × 12	4-9	3	3-9	3	3-2	4
	2-2 × 4	2-8	1	2-1	1	1-9	1
	2-2 × 6	4-0	1	3-2	2	2-8	2
	2-2 × 8	5-0	2	4-0	2	3-5	2
	2-2 × 10	6-0	2	4-9	2	4-0	2
	2-2 × 12	7-0	2	5-7	2	4-9	3
	3-2 × 8	6-4	1	5-0	2	4-3	2
	3-2 × 10	7-6	2	5-11	2	5-1	2
	3-2 × 12	8-10	2	7-0	2	5-11	2
	4-2 × 8	7-3	1	5-9	1	4-11	2
	4-2 × 10	8-8	1	6-10	2	5-10	2
	4-2 × 12	10-2	2	8-1	2	6-10	2
Roof, ceiling, and two clear-span floors	1-2 × 6	2-3	2	1-9	2	1-5	2
	1-2 × 8	2-10	2	2-2	3	1-10	3
	1-2 × 10	3-4	2	2-7	3	2-2	3
	1-2 × 12	4-0	3	3-0	3	2-7	4
	2-2 × 4	2-3	1	1-8	1	1-4	1
	2-2 × 6	3-4	1	2-6	2	2-2	2
	2-2 × 8	4-3	2	3-3	2	2-8	2
	2-2 × 10	5-0	2	3-10	2	3-2	3
	2-2 × 12	5-11	2	4-6	3	3-9	3
	3-2 × 8	5-3	1	4-0	2	3-5	2
	3-2 × 10	6-3	2	4-9	2	4-0	2
	3-2 × 12	7-5	2	5-8	2	4-9	3
	4-2 × 8	6-1	1	4-8	2	3-11	2
	4-2 × 10	7-3	2	5-6	2	4-8	2
	4-2 × 12	8-6	2	6-6	2	5-6	2

For SI: 1 inch = 25.4 mm, 1 pound per square foot = 0.0479 kPa.
a. Spans are given in feet and inches.
b. Spans are based on the minimum design properties for No. 2 grade lumber of Douglas Fir-Larch, Hem-Fir, Southern Pine, and Spruce-Pine Fir.
c. Building width is measured perpendicular to the ridge. For widths between those shown, spans are permitted to be interpolated.
d. NJ = Number of jack studs required to support each end. Where the number of required jack studs equals one, the header is permitted to be supported by an approved framing anchor attached to the full-height wall stud and to the header.
e. Use 30 psf ground snow load for cases in which ground snow load is less than 30 psf and the roof live load is equal to or less than 20 psf.
f. Spans are calculated assuming the top of the header or girder is laterally braced by perpendicular framing. Where the top of the header or girder is not laterally braced (e.g., cripple studs bearing on the header), tabulated spans for headers consisting of 2×8, 2×10, or 2×12 sizes shall be multiplied by 0.70 or the header shall be designed.

GIRDER/HEADER SPANS
INTERIOR WALLS & PORCHES

TABLE R602.7(2)
GIRDER SPANS[a] AND HEADER SPANS[a] FOR INTERIOR BEARING WALLS
(Maximum spans for Douglas Fir-larch, Hem-fir, Southern Pine and Spruce-pine-fir[b] and required number of jack studs)

HEADERS AND GIRDERS SUPPORTING	SIZE	BUILDING WIDTH[c] (feet) 12 Span[a]	12 NJ[d]	24 Span[a]	24 NJ[d]	36 Span[a]	36 NJ[d]
One floor only	2-2 × 4	4-1	1	2-10	1	2-4	1
	2-2 × 6	6-1	1	4-4	1	3-6	1
	2-2 × 8	7-9	1	5-5	1	4-5	2
	2-2 × 10	9-2	1	6-6	2	5-3	2
	2-2 × 12	10-9	1	7-7	2	6-3	2
	3-2 × 8	9-8	1	6-10	1	5-7	1
	3-2 × 10	11-5	1	8-1	1	6-7	2
	3-2 × 12	13-6	1	9-6	2	7-9	2
	4-2 × 8	11-2	1	7-11	1	6-5	1
	4-2 × 10	13-3	1	9-4	1	7-8	1
	4-2 × 12	15-7	1	11-0	1	9-0	2
Two floors	2-2 × 4	2-7	1	1-11	1	1-7	1
	2-2 × 6	3-11	1	2-11	2	2-5	2
	2-2 × 8	5-0	1	3-8	2	3-1	2
	2-2 × 10	5-11	2	4-4	2	3-7	2
	2-2 × 12	6-11	2	5-2	2	4-3	3
	3-2 × 8	6-3	1	4-7	2	3-10	2
	3-2 × 10	7-5	1	5-6	2	4-6	2
	3-2 × 12	8-8	2	6-5	2	5-4	2
	4-2 × 8	7-2	1	5-4	1	4-5	2
	4-2 × 10	8-6	1	6-4	2	5-3	2
	4-2 × 12	10-1	1	7-5	2	6-2	2

For SI: 1 inch = 25.4 mm, 1 foot = 304.8 mm.
a. Spans are given in feet and inches.
b. Spans are based on the minimum design properties for No. 2 grade lumber of Douglas Fir-Larch, Hem-Fir, Southern Pine, and Spruce-Pine Fir.
c. Building width is measured perpendicular to the ridge. For widths between those shown, spans are permitted to be interpolated.
d. NJ = Number of jack studs required to support each end. Where the number of required jack studs equals one, the header is permitted to be supported by an approved framing anchor attached to the full-height wall stud and to the header.
e. Spans are calculated assuming the top of the header or girder is laterally braced by perpendicular framing. Where the top of the header or girder is not laterally braced (e.g., cripple studs bearing on the header), tabulated spans for headers consisting of 2 × 8, 2 × 10, or 2 × 12 sizes shall be multiplied by 0.70 or the header shall be designed.

TABLE R602.7(3)
GIRDER AND HEADER SPANS[a] FOR OPEN PORCHES
(Maximum span for Douglas fir-larch, hem-fir, southern pine and spruce-pine-fir[b])

SIZE	SUPPORTING ROOF GROUND SNOW LOAD (psf) 30 DEPTH OF PORCH[c] (feet) 8	30 14	50 8	50 14	70 8	70 14	SUPPORTING FLOOR 8	SUPPORTING FLOOR 14
2-2 × 6	7-6	5-8	6-2	4-8	5-4	4-0	6-4	4-9
2-2 × 8	10-1	7-7	8-3	6-2	7-1	5-4	8-5	6-4
2-2 × 10	12-4	9-4	10-1	7-7	8-9	6-7	10-4	7-9
2-2 × 12	14-4	10-10	11-8	8-10	10-1	7-8	11-11	9-0

For SI: 1 inch = 25.4 mm, 1 foot = 304.8 mm, 1 pound per square foot = 0.0479 kPa.
a. Spans are given in feet and inches.
b. Tabulated values assume #2 grade lumber, wet service and ineising for refractory species. Use 30 psf ground snow load for cases in which ground snow load is less than 30 psf and the roof live load is equal to or less than 20 psf.
c. Porch depth is measured horizontally from building face to centerline of the header. For depths between those shown, spans are permitted to be interpolated.

RAFTER/CEILING
HEEL JOINT CONNECTION

TABLE R802.5.2
RAFTER/CEILING JOIST HEEL JOINT CONNECTIONS[a, b, c, d, e, f, h]

RAFTER SLOPE	RAFTER SPACING (inches)	GROUND SNOW LOAD (psf) 20[g] Roof span (feet) 12	20	28	36	30 12	20	28	36	50 12	20	28	36	70 12	20	28	36
		Required number of 16d common nails[a, b] per heel joint splices[c, d, e, f]															
3:12	12	4	6	8	10	4	6	8	11	5	8	12	15	6	11	15	20
	16	5	8	10	13	5	8	11	14	6	11	15	20	8	14	20	26
	24	7	11	15	19	7	11	16	21	9	16	23	30	12	21	30	39
4:12	12	3	5	6	8	3	5	6	8	4	6	9	11	5	8	12	15
	16	4	6	8	10	4	6	8	11	5	8	12	15	6	11	15	20
	24	5	8	12	15	5	9	12	16	7	12	17	22	9	16	23	29
5:12	12	3	4	5	6	3	4	5	7	3	5	7	9	4	7	9	12
	16	3	5	6	8	3	5	7	9	4	7	9	12	5	9	12	16
	24	4	7	9	12	4	7	10	13	6	10	14	18	7	13	18	23
7:12	12	3	4	4	5	3	3	4	5	3	4	5	7	3	5	7	9
	16	3	4	5	6	3	4	5	6	3	5	7	9	4	6	9	11
	24	3	5	7	9	3	5	7	9	4	7	10	13	5	9	13	17
9:12	12	3	3	4	4	3	3	3	4	3	3	4	5	3	4	5	7
	16	3	4	4	5	3	3	4	5	3	4	5	7	3	5	7	9
	24	3	4	6	7	3	4	6	7	3	6	8	10	4	7	10	13
12:12	12	3	3	3	3	3	3	3	3	3	3	3	4	3	3	4	5
	16	3	3	4	4	3	3	3	4	3	3	4	5	3	4	5	7
	24	3	4	4	5	3	3	4	6	3	4	6	8	3	6	8	10

For SI: 1 inch = 25.4 mm, 1 foot = 304.8 mm, 1 pound per square foot = 0.0479 kPa.
a. 40d box nails shall be permitted to be substituted for 16d common nails.
b. Nailing requirements shall be permitted to be reduced 25 percent if nails are clinched.
c. Heel joint connections are not required where the ridge is supported by a load-bearing wall, header or ridge beam.
d. Where intermediate support of the rafter is provided by vertical struts or purlins to a load-bearing wall, the tabulated heel joint connection requirements shall be permitted to be reduced proportionally to the reduction in span.
e. Equivalent nailing patterns are required for ceiling joist to ceiling joist lap splices.
f. Where rafter ties are substituted for ceiling joists, the heel joint connection requirement shall be taken as the tabulated heel joint connection requirement for two-thirds of the actual rafter slope.
g. Applies to roof live load of 20 psf or less.
h. Tabulated heel joint connection requirements assume that ceiling joists or rafter ties are located at the bottom of the attic space. Where ceiling joists or rafter ties are located higher in the attic, heel joint connection requirements shall be increased by the following factors:

H_c/H_a	Heel Joint Connection Adjustment Factor
1/3	1.5
1/4	1.33
1/5	1.25
1/6	1.2
1/10 or less	1.11

where:
H_c = Height of ceiling joists or rafter ties measured vertically above the top of the rafter support walls.
H_a = Height of roof ridge measured vertically above the top of the rafter support walls.

Drawing comply with the 2018 Virginia Uniform Statewide Building Code (USBC).

Authority: 2018 Virginia Building and Fire Code Related Laws Package § 54.1-402.

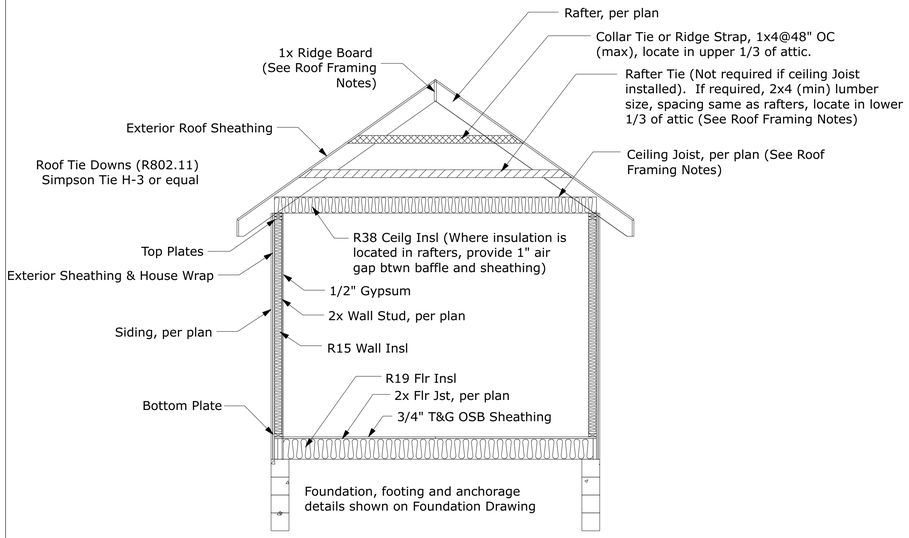
GENERAL SPECS (1) - CONNECTION METHODS

DRAWINGS PROVIDED BY:
House Plans by Design, LLC
Designer: Neil Wilson, Engineer
Phone: 757.621.7832
100 Windy Point Dr
Suffolk, Va 23435
www.HousePlansbyDesign.com

DATE:
10/16/2022

SHEET:
H-1

TYPICAL WALL CONSTRUCTION DETAILS



Wall Construction Detail (Typ)
3/8" Scale

This drawing depicts a general representation of the desired construction method and is not intended to represent any particular portion of the project.

STAIRWAYS AND GUARDS

10. STAIRWAYS AND GUARDS [R311.7 & R312]

A. Width. Stairways shall be not less than 36" in clear width. Handrails shall not project more than 4 1/2" on either side of the stairway and the clear width of the stairway at and below the handrail height, including treads and landings, shall be not less than 31 1/2" where a handrail is installed on one side and 27" where handrails are provided on both sides. [R311.7.1]

B. Headroom. The headroom in stairways shall be not less than 6' -8" measured vertically from the sloped line adjoining the tread nosing or from the floor surface of the landing. [R311.7.2]

C. Risers. The riser height shall be not more than 8 1/4", measured vertically between the leading edges of the adjacent treads. The greatest riser height within any flight of stairs shall not exceed the smallest by more than 3/8" Risers shall be vertical or sloped from the underside of the nosing of the tread above at an angle not more than 30 degrees from the vertical. Open risers are permitted provided that the openings located more than 30", as measured vertically, to the floor or grade below do not permit the passage of a 4" diameter sphere. [R311.7.5.1]

D. Treads. The tread depth shall be not less than 9", measured horizontally between the vertical planes of the foremost projection of adjacent treads and at a right angle to the tread's leading edge. The greatest tread depth within any flight of stairs shall not exceed the smallest by more than 3/8". [R311.7.5.2]

E. Nosings. The radius of curvature at the nosing shall not be greater than 9/16". A nosing projection not less than 3/4" and not more than 1 1/4" shall be provided on stairways with solid risers. The greatest nosing projection shall not exceed the smallest nosing projection by more than 3/8" between two stories, including the nosing at the level of floors and landings. Beveling of nosings shall not exceed 1/2". Exception: A nosing projection is not required where the tread depth is not less than 11".[R311.7.5.3]

F. Landings for stairways. There shall be a floor or landing at the top and bottom of each stairway. The width perpendicular to the direction of travel shall be not less than the width of the flight served. Where the stairway has a straight run, the depth in the direction of travel shall be not less than 36". Exception: A floor or landing is not required at the top of an interior flight of stairs, including stairs in an enclosed garage, provided that a door does not swing over the stairs. [R311.7.6]

G. Handrails. Handrails shall be provided on at least one side of each continuous run of treads or flight with four or more risers. Handrail height, measured vertically from the sloped plane adjoining the tread nosing shall be not less than 34" and not more than 38". [R311.7.8]

H. Handrails shall be continuous for the full length of the flight, from a point directly above the top riser of the flight to a point directly above the lowest riser. Handrail ends shall be returned or shall terminate in newel posts or safety terminals. Handrails adjacent to a wall shall have a space of not less than 1 1/2" between the wall and the handrails. [R311.7.8.2]

I. Handrail grip-sizes shall be either Type I or II per R311.7.8.3, or provide equivalent graspability. [R311.7.8.3]

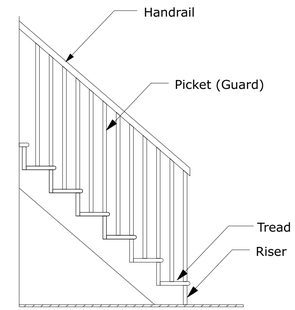
J. Guards shall be located along open-sided walking surfaces, including stairs, ramps and landings, that are located more than 30" measured vertically to the floor or grade below at any point within 36" horizontally to the edge of the open side. Insect screening shall not be considered as a guard. [R312.1.1]

K. Guard Height. Guards at open-sided walking surfaces, including stairs, porches, balconies or landings, shall be not less than 36" in height as measured vertically above the adjacent walking surface or the line connecting the leading edges of the treads. Exceptions: 1. Guards on the open sides of stairs shall have a height not less than 34" measured vertically from a line connecting the leading edges of the treads. 2. Where the top of the guard serves as a handrail on the open sides of stairs, the top of the guard shall be not less than 34" and not more than 38" as measured vertically from a line connecting the leading edges of the treads. [R312.1.1]

L. Guard Opening Limitations. Guards shall not have openings from the walking surface to the required guard height that allow passage of a sphere 4" in diameter. Exceptions: 1. 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" in diameter. 2. Guards on the open side of stairs shall not have openings that allow passage of a sphere 4 3/8" in diameter. [R312.1.3]

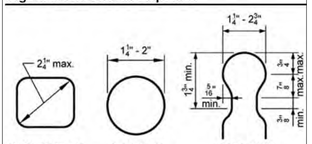
M. Under-stair protection. Enclosed accessible space under stairs shall have walls, under-stair surface and any soffits protected on the enclosed side with 1/2" gypsum board. [R302.7]

N. FIRE-RESISTANT CONSTRUCTION. Under-stair protection. Enclosed accessible space under stairs shall have walls, under-stair surface and any soffits protected on the enclosed side with 1/2-inch gypsum board. [R302.7]



Stair Detail (Typ)
1/2" Scale

Figure 32B. Handrail Grip Size.



TYPICAL FRAMING DETAILS

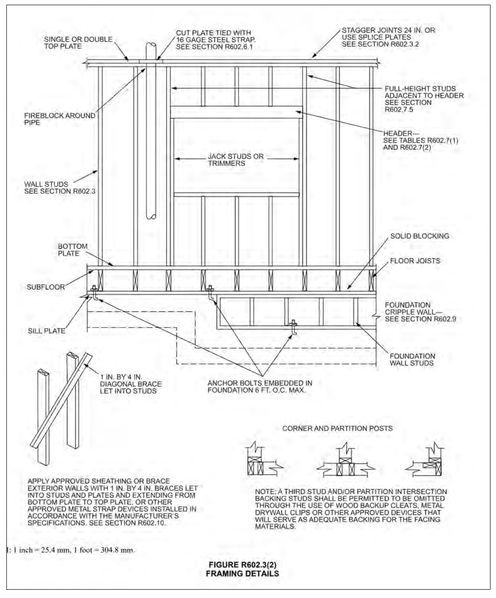


Figure R602.3(2)
Framing Details

HEADER STUDS

R602.7.5 Supports for headers. Headers shall be supported on each end with one or more jack studs or with approved framing anchors in accordance with Table R602.7(1) or R602.7(2). The full-height stud adjacent to each end of the header shall be end nailed to each end of the header with four-16d nails (3.5 inches × 0.135 inches). The minimum number of full-height studs at each end of a header shall be in accordance with Table R602.7.5.

TABLE R602.7.5
MINIMUM NUMBER OF FULL HEIGHT STUDS AT EACH END OF HEADERS IN EXTERIOR WALLS

HEADER SPAN (feet)	MAXIMUM STUD SPACING (inches) [per Table R602.3(5)]	
	16	24
≤ 3′	1	1
4′	2	1
8′	3	2
12′	5	3
16′	6	4

Table R602.7.5
Minimum Full Height Studs Adjacent to Header Openings
(Applies to Exterior Walls Only)

FIXTURE CLEARANCES

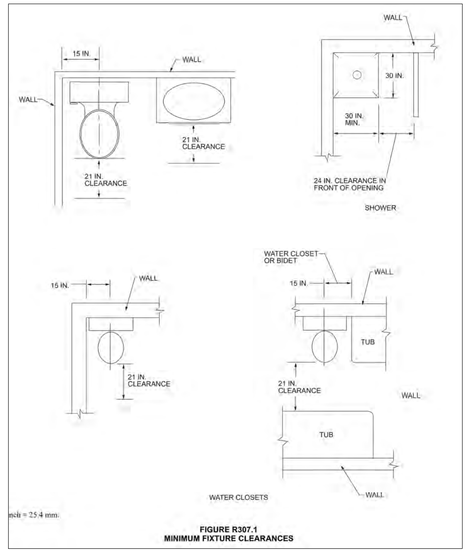


Figure R307.1
Minimum Fixture Clearances

Drawing comply with the 2018 Virginia Uniform Statewide Building Code (USBC).

Authority: 2018 Virginia Building and Fire Code Related Laws Package § 54.1-402.

GENERAL SPECS (2) - STAIRS, FIXTURES & FRAMING

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SHEET:
H-2

WALL BRACING

*** See Sheets A-4 for Wall Bracing Notes ***

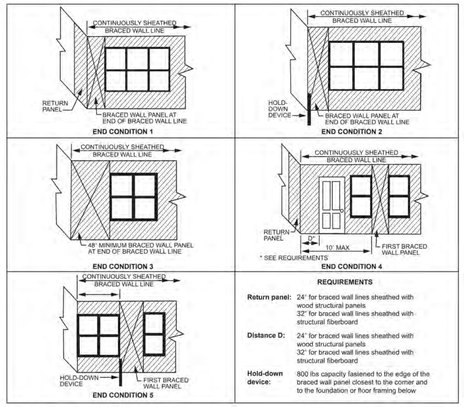
RQMTS FOR WSPs

TABLE R602.3(3)
REQUIREMENTS FOR WOOD STRUCTURAL PANEL WALL SHEATHING USED TO RESIST WIND PRESSURES[a, b, c]

MINIMUM NAIL		MINIMUM WOOD STRUCTURAL PANEL SPAN RATING	MINIMUM NOMINAL PANEL THICKNESS (inches)	MAXIMUM WALL STUD SPACING (inches)	PANEL NAIL SPACING		ULTIMATE DESIGN WIND SPEED V_{ult} (mph)
Size	Penetration (inches)				Edges (inches o.c.)	Field (inches o.c.)	Wind exposure category
							B
6d Common (2.0" × 0.113")	1.5	24/0	3/8	16	6	12	140
8d Common (2.5" × 0.131")	1.75	24/16	7/16	16	6	12	170

Table 602.3(3), Rqmts for WSPs

END CONDITIONS



1 inch = 25.4 mm, 1 foot = 304.8 mm, 1 pound = 4.45 N.

FIGURE R602.10.7
END CONDITIONS FOR BRACED WALL LINES WITH CONTINUOUS SHEATHING

Figure R602.10.7
End Conditions for CS BWLs

METHODS & CONNECTIONS

Table 602.10.4 - continued
BRACING METHODS

Method	Minimum Thickness	Figure	Connection Criteria Fasteners/Spacing	
CS-WSP Continuously sheathed wood structural panel	3/8"		Exterior sheathing per Table R602.3(3)	6" edges 12" field
			Interior sheathing per Table R602.3(1) or R602.3(2)	Varies by fastener
GB Gypsum board	1/2"		Nails or screws per Table R602.3(1) for exterior locations	For all braced wall panel locations: 7" edges (including top and bottom plates) 7" field
			Nails or screws per Table R702.3.5 for interior locations	

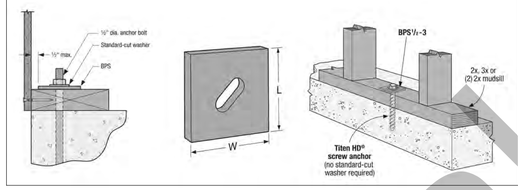
Table 602.10.4
Bracing Methods & Connection Criteria

Sill Plate Anchors
(Simpson ST Products)

Table 4 — Sill Plate Anchors

Anchor Type	Model Number	Size (in.)	Sill Plate Size	Min. Concrete End Distance
Post-Installed[1]	Titen HD THD50600H	½ x 6	Single 2x	6"
	Titen HD THD50800H	½ x 8	Single 3x or Double 2x	6"

1. Provide plate washers beneath the anchor head when required by code.
2. Mechanically galvanized anchors may be required by code when used with treated wood. Add 'MG' to model number for mechanically galvanized Titen HD option. For additional information, visit **strongtie.com**.
3. Minimum concrete edge distance required = 1¾" for Titen HD.
4. ZMAX® (galvanized G185) coating may be required by code when used with treated wood. Add 'Z' to model number for ZMAX option (e.g. MASAZ).
5. Minimum concrete strength, f'c = 2,500 psi.



800# Hold Down Connectors
(Simpson ST Products)

Figure 1: Braced Wall Panel-to-Foundation Holdown Solutions for 800 lb. Capacity Holdown Requirement

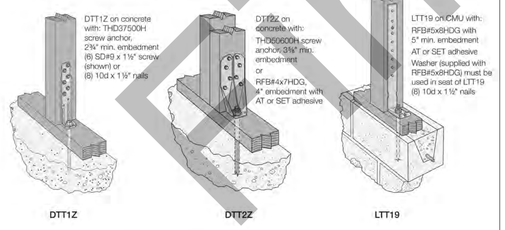
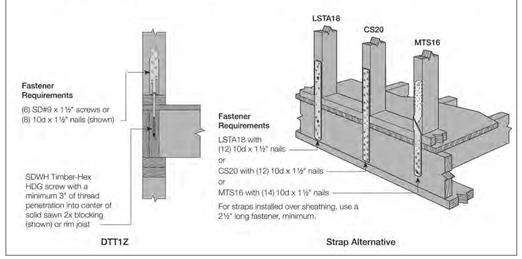
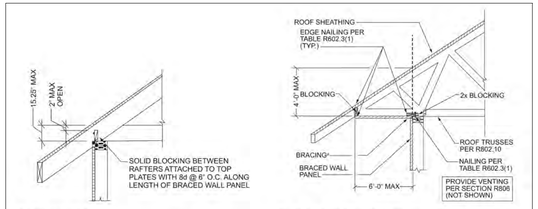


Figure 2: Braced Wall Panel-to-Floor Framing Holdown Solutions for 800 lb. Capacity Holdown Requirement



BWP CONNECTIONS

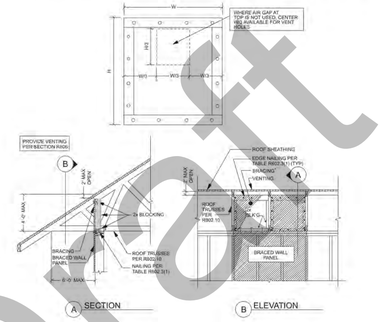


For SI: 1 inch = 25.4 mm.

FIGURE R602.10.8.2(1)
BRACED WALL PANEL CONNECTION TO PERPENDICULAR RAFTERS

For SI: 1 inch = 25.4 mm, 1 foot = 304.8 mm.
a. Methods of bracing shall be as described in Section R602.10.4.

FIGURE R602.10.8.2(2)
BRACED WALL PANEL CONNECTION OPTION TO PERPENDICULAR RAFTERS OR ROOF TRUSSES

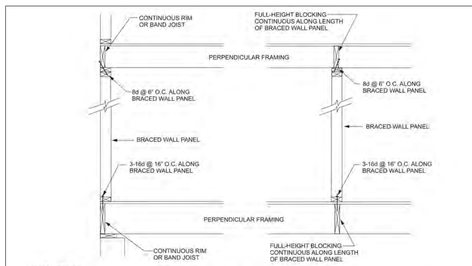


For SI: 1 inch = 25.4 mm, 1 foot =304.8 mm.
a. Methods of bracing shall be as described in Section R602.10.4.

FIGURE R602.10.8.2(3)
BRACED WALL PANEL CONNECTION OPTION TO PERPENDICULAR RAFTERS OR ROOF TRUSSES

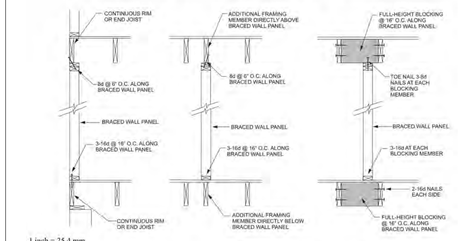
Figures R602.10.8.2(1,2 & 3)
Braced Wall Panel Connection...

BWP CONNECTIONS



1 inch = 25.4 mm.

FIGURE R602.10.8(1)
BRACED WALL PANEL CONNECTION WHEN PERPENDICULAR TO FLOOR/CEILING FRAMING

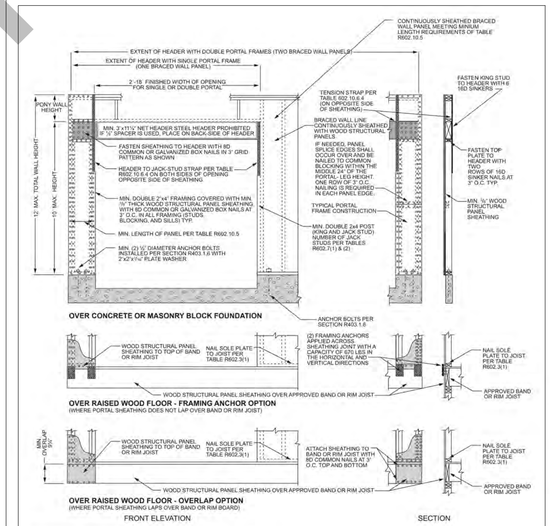


1 inch = 25.4 mm.

FIGURE R602.10.8(2)
BRACED WALL PANEL CONNECTION WHEN PARALLEL TO FLOOR/CEILING FRAMING

Figures R602.10.8(1 & 2)
Braced Wall Panel Connection...

BWP METHOD CS-PF



For SI: 1 inch = 25.4 mm, 1 foot = 304.8 mm.

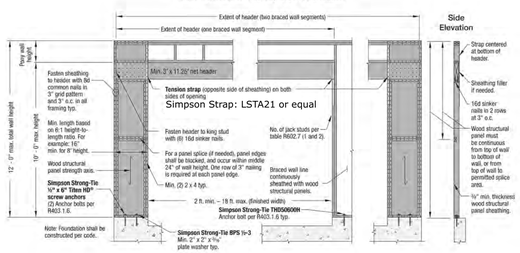
FIGURE R602.10.6.4
METHOD CS-PF—CONTINUOUSLY SHEATHED PORTAL FRAME PANEL CONSTRUCTION

Figure R602.10.6.4
Method CS-PF
Conventional Framing

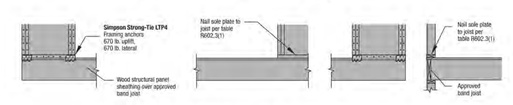
Method CS-PF: Continuously Sheathed Portal Frame (R602.10.6.4)

The CS-PF portal frame does not require holdowns, and it may be used on a raised wood floor or upper floor using alternative attachment details (see the Framing Anchor Option). Like the intermittent portal frame methods, the CS-PF requires tension straps on each side of the opening.

Over Concrete or Masonry Block Foundation



Over Raised Wood Floor or Second Floor — Framing Anchor Option



Method CS-PF: Continuously Sheathed Portal Frame

Alternate Method CS-PF
Using Simpson ST Products

Connectors
A. 2 ea. - 5/8" x 8" Titen HD Screw anchors with BPS 1/2"-3 Plate Washers
B. LSTA21 Strap (1,000 lb tension capacity)
C. LTP4 Framing Anchors (670 lb uplift/lateral restraint)
D. THD50600H Anchor bolt (for non-PF wall segments)

Drawing comply with the 2018 Virginia Uniform Statewide Building Code (USBC).

Authority: 2018 Virginia Building and Fire Code Related Laws Package § 54.1-402.

WALL BRACING - FIGURES

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I-1

WALL BRACING

*** See Sheets A-4 for Wall Bracing Notes ***

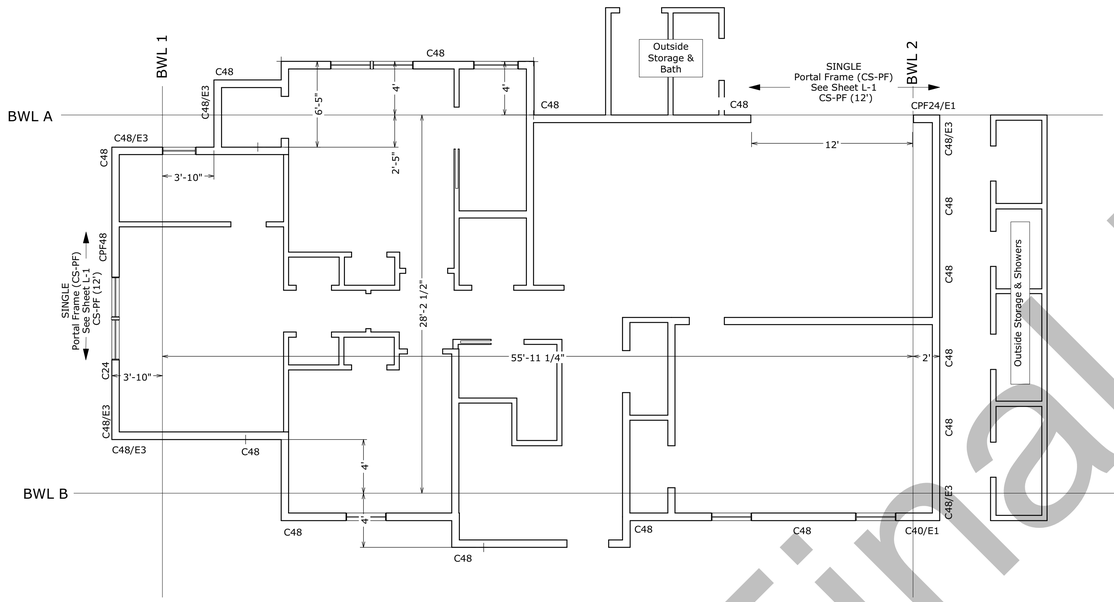
LEGEND

C48 = CS-WSP (Continuous Sheathing - Wood Structural Panel), 48" wide

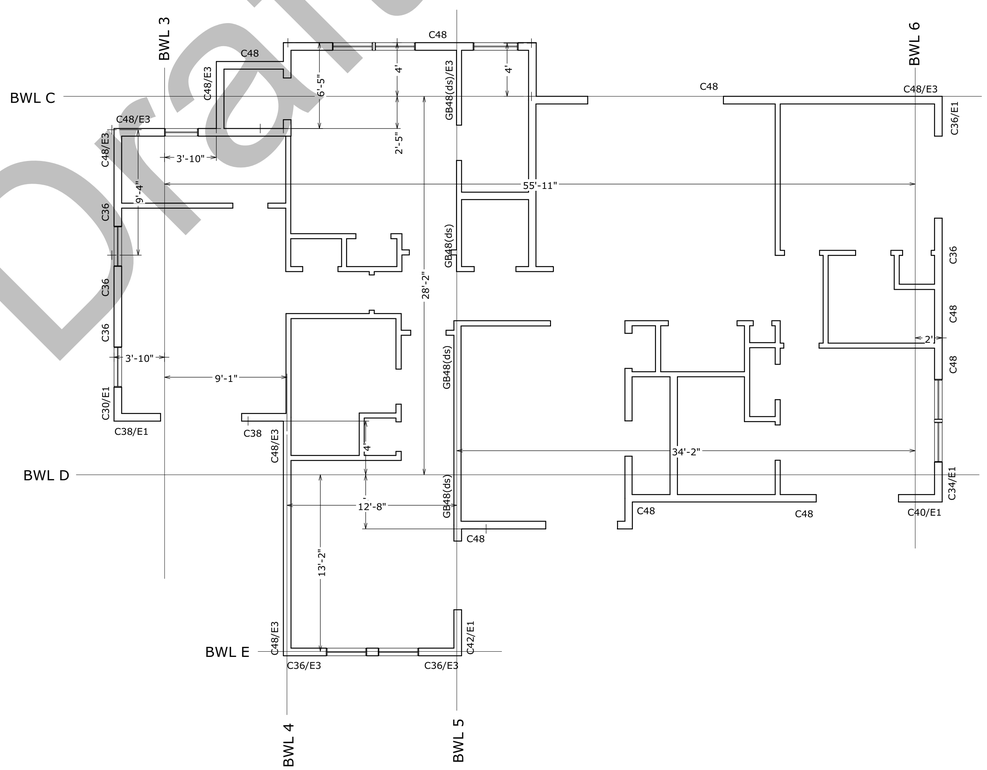
GB48(ss or ds) = GB (Gypsum Board - double or single sided), 48" wide

CPF20= Continuously Sheathed Portal Frame Panel, 20" wide

E1 = End Condition 1 (Options 1-5 available)



WALL BRACING PLAN, 1st LEVEL, 3/16" SCALE
(See Sheets A-4 for Wall Bracing Notes)



WALL BRACING PLAN, 2nd LEVEL, 3/16" SCALE
(See Sheets A-4 for Wall Bracing Notes)

NOTE: Dimensions given on Wall Bracing Plans are for design use only. Consult applicable floor plan for required framing dimensions.

Drawing comply with the 2018 Virginia Uniform Statewide Building Code (USBC).

Authority: 2018 Virginia Building and Fire Code Related Laws Package § 54.1-402.

WALL BRACING PLAN (1)

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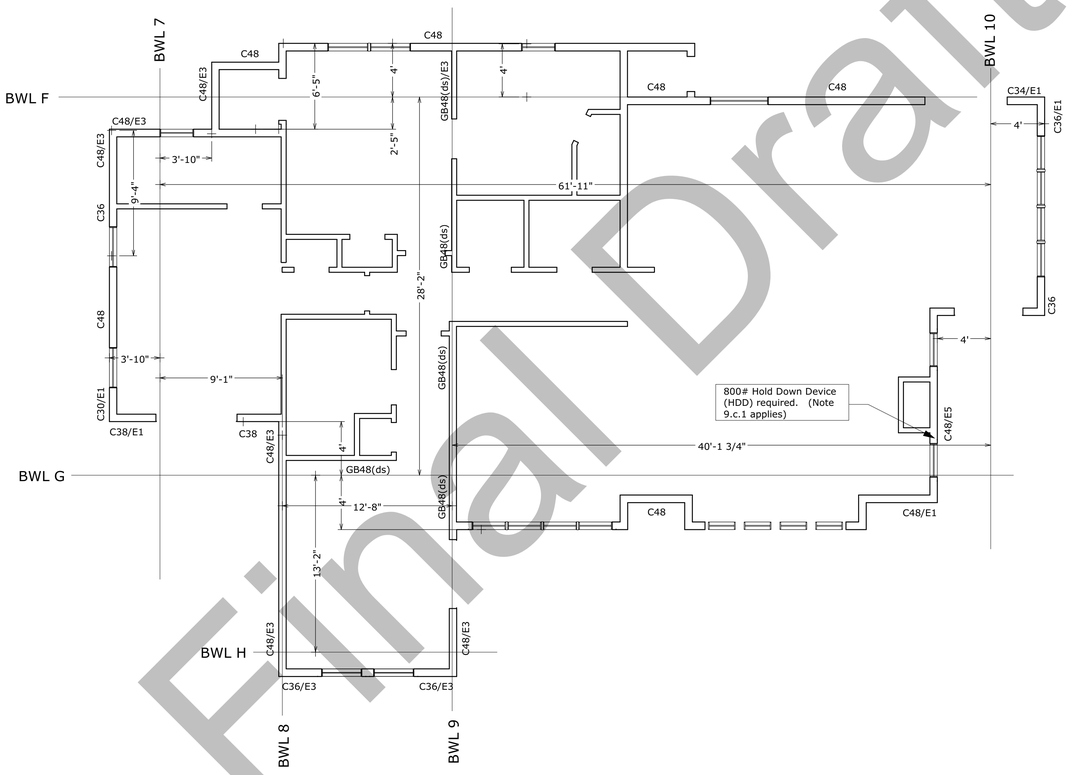

WALL BRACING PLAN, 1st LEVEL, 3/16" SCALE
(See Sheets A-4 for Wall Bracing Notes)

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WALL BRACING PLAN (2)

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I-3

ENGINEERED WOOD PRODUCTS (EWPs)

*** See Sheets A-4 for EWP Notes ***

DEFINITIONS & NOMENCLATURE

1. Beams are defined as structural elements that primarily resists loads applied laterally to the axis of the beam. They are designed to carry heavy loads and typically used to span wall openings or help create open floor concepts.

- EWP Beam products - Laminated Veneer Lumber (LVL) and Glulams. LVLs are used for interior applications, while Glulams used for exterior applications.
- EWP Beams designators - FB indicates it is to be installed flush within the floor cavity, DB indicates it is dropped below the ceiling, and RB indicates it is a Ridge Beam. Alternate designators may also be used.

2. Columns are required to be installed at designated bearing locations along the length of the beam. **Point Load (PL)** identifiers are used, indicating the exact location and force exerted by the beam at each bearing point. Columns are designed (or sized) to support the indicated weight associated with the applicable **PL**.

- EWP Column products - LVL Columns or Parallel Stan Lumber (PSL).
- Columns can also be prefabricated (e.g., fiberglass) or conventional lumber (e.g., 4x4, 6x6, 8x8).
- Stick framed columns; blocking (which is commonly used between floor cavities); and purlins (used to support bearings in attic spaces such as hip and valley rafters) are also used.

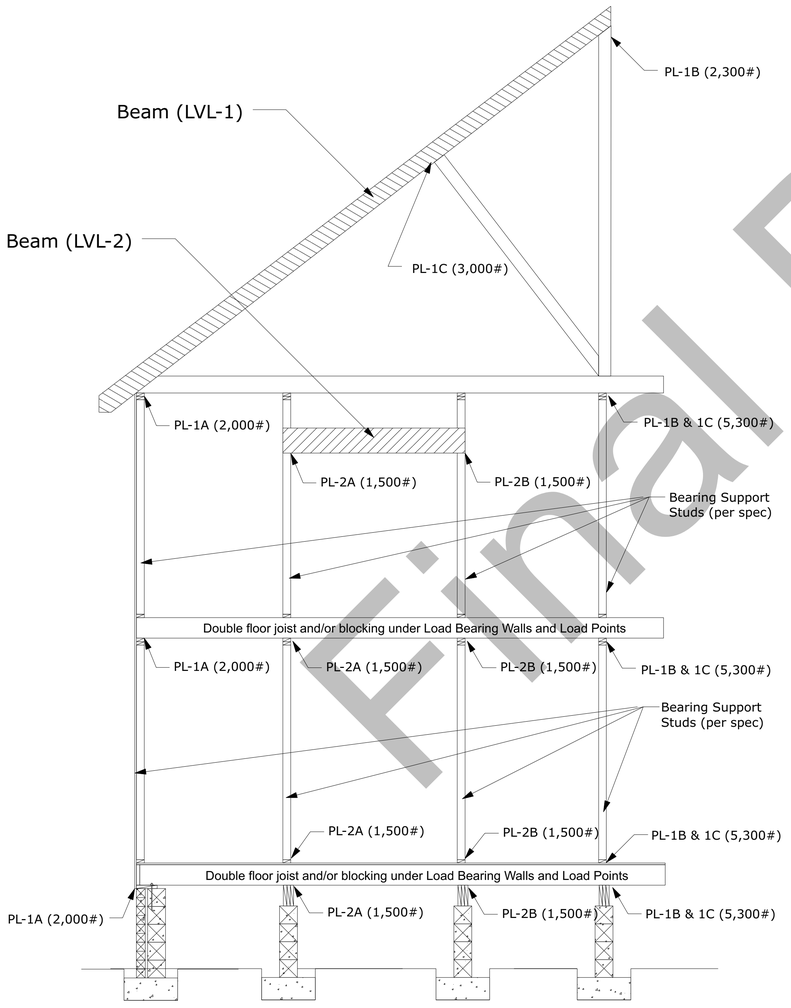


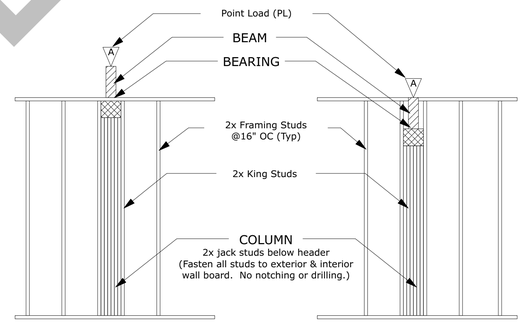
Figure B1
Example of Load Path Stacking

Table B2
Stick Framed Column Design Guide

See Note 5.A.4 for maximum design criteria for stick framed bearing supports.

Bearing Point Load (lbs)	Column Design	Blocking Design (in2)	Max Design (lbs)
			DO NOT USE
0 to 3,000	2-2x4	5.25	5,932
> 3,000 to 6,000	3-2x4	10.5	8,892
> 6,000 to 9,000	4-2x4	15.75	11,865
> 9000 to 10,000	5-2x4	26.25	14,831
0 to 5,000	2-2x6	8.25	9,322
> 5,0000 to 9,500	3-2x6	16.5	13,983
> 9,500 to 10,000	4-2x6	24.75	18,645

Figure B2
Bearing Support Installation



DESIGN BASIS FOR STICK FRAMED COLUMNS

a. Bearing Point Loads (PLs) and associated **Columns** depicted in these construction drawings have been designed based using SP#2 lumber; 565 psi allowable stress in compression perpendicular to grain; and 1425 psi allowable stress in Bending parallel to grain.

b. Table B2 provides requirements for columns supporting PLs not exceeding 14,000 pounds and has been developed to ensure column stability (buckling) and compression of wall top plates does not exceed allowable limits. (Note that all evaluations are performed by the designer and/or the engineered lumber provider.)

EXAMPLE

The following example is for a 5,300 pound Point Load located at the end of Beam B1 (i.e., B1-1). In this example, the 5,300 Point Load is required to be supported by 3-2x4's per Table B2. Blocking is required between floors, having an equivalent cross sectional area (15.75 in2). Columns shall extend from directly under the Bearing to the foundation below. There shall be no structural gaps or voids between the Bearing and the footing.

ID: B1-1	(Beam/Bearing Load ID #)
Load: 5,300 lbs	Bearing Load
Column Design: 3-2x4	(# and size of stick framed columns)
Bearing Size: 3-2x4 (15.75 in2)	(Column or Blocking Size)
Stress: 336 psi	(Calculated Stress. Criteria < 565 psi)

ENGINEERED WOOD PRODUCTS - NOTES

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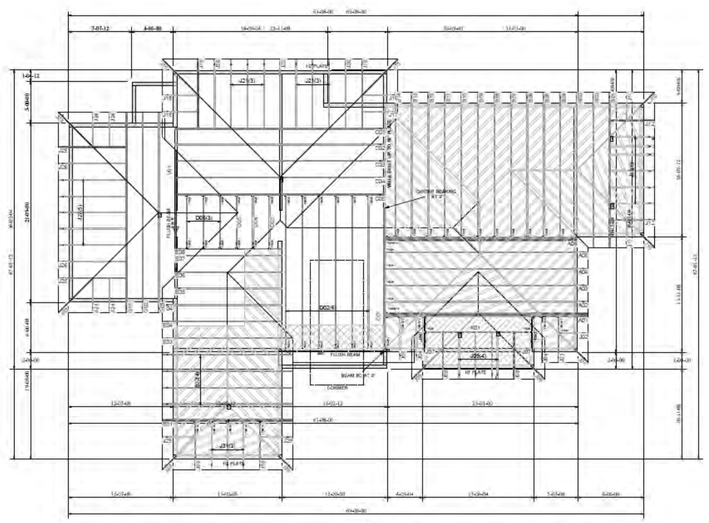
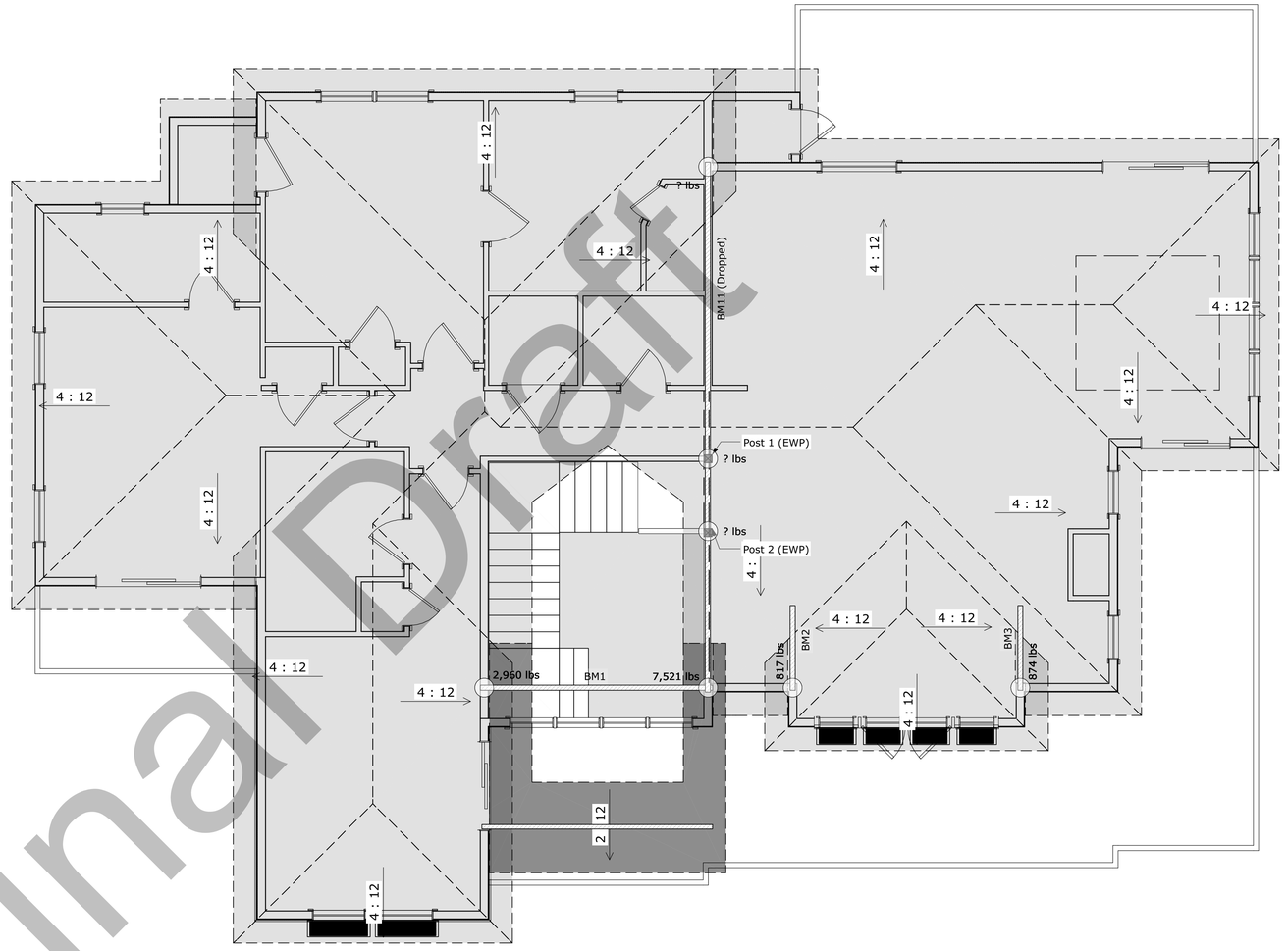
ENGINEERED WOOD PRODUCTS (EWPs)

*** See Sheets A-4 for EWP Notes ***



EWP PLAN (Excerpt)
ROOF FRAMING
(See EWP Provider's Drawing)

CAUTION (BEARING LOADS)
Proper alignment and installation of floor joist, bearing studs and blocking is vitally important to ensure beams and corresponding POINT LOADS are properly supported. See Beam Installation Guide on Sheet F-1.



POINT LOADS SHOWN ARE ALSO SHOWN ON THE FLOOR LEVEL BELOW. SEE NEXT SHEET.

EWP POINT LOAD PLAN
(Per EWP Provider's Layout Dwg)
ROOF LEVEL, Scale: 1/4"
(See Sheets A-4 for EWP Notes)

ENGINEERED WOOD PRODUCTS (EWP) LAYOUT
(The following info is provided by Kempsville Building Materials)

1 Beam Orientation and Point Loads: Typically ALL beams are oriented left to right (side to side) and front to back (bottom to top) when associating the calc sheets to the layout. So for beams running side to side, the left end on the layout is the left end on the calculation. For beams running front to back, the front end on the layout is the left end on the calculation.

2 Engineered Post are designed for LVLs to be placed in direct contact on the top of post. The bottom of post are designed to be placed on bottom plates, without concern for crushing. Continuous vertical support below the post to the foundation below is required.

Table B1 - Bearing Supports for Beams

The following tables provides requirements for Point Loads (PLs) that exceed 4,000 lbs. All other PLs are less than 4,000 and require 2-2x4 studs to support beam ends. See Beam Plans and Spec Sheets (provided by others) for more information.

Description	Point Load ID	Load (lbs)	Brg Studs Qty	Calc Stress (psi)
Dining Rm	D5-A(1)	4,897	3	311
Dining Rm	D5-A(2)	6,687	4	318
F12 Main Left Support - rear	D8-A(1)	6,246	4	198
F12 Main Left Support - front	D8-B(1)	5,393	3	228
Main Kitchen Girder - Right	F16-A(1)	5,452	3	231
Main Kitchen Girder - Right	F16-A(2)	5,179	3	219
Main Living Rm Girder - Right	F8-A(1)	9,808	5	249
Main Living Rm Girder - Right	F8-A(2)	8,339	4	265
Main Living Rm Girder - Left	F8-B(1)	10,473	5	266
Main Living Rm Girder - Left	F8-B(2)	6,204	3	167

ORDERING EWP MATERIALS

Use EWP drawings and specifications (provided by others) to order materials and perform work. Prior to ordering, the Builder is responsible for reviewing the EWP design drawings. Verify quantities, lengths, and any special features such as HVAC duct cavities locations in open web joist. The Beams and/or I-Joist framing on this sheet are provided for informational purposes only.

Drawing comply with the 2018 Virginia Uniform Statewide Building Code (USBC).

Authority: 2018 Virginia Building and Fire Code Related Laws Package § 54.1-402.

ENGINEERED WOOD PRODUCTS - PLANS

DRAWINGS PROVIDED BY:
House Plans by Design, LLC
Designer: Neil Wilson, Engineer
Phone: 757.621.7832
100 Windy Point Dr
Suffolk, Va 23435
www.HousePlansbyDesign.com

DATE:
10/16/2022

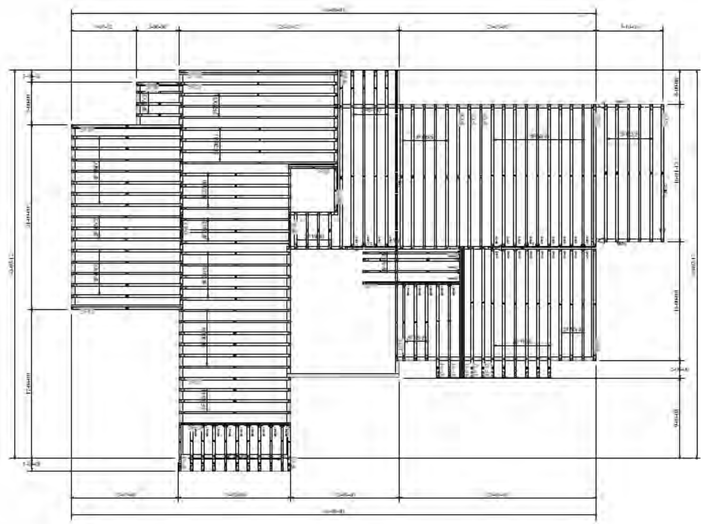
SHEET:
J-2

ENGINEERED WOOD PRODUCTS (EWPs)

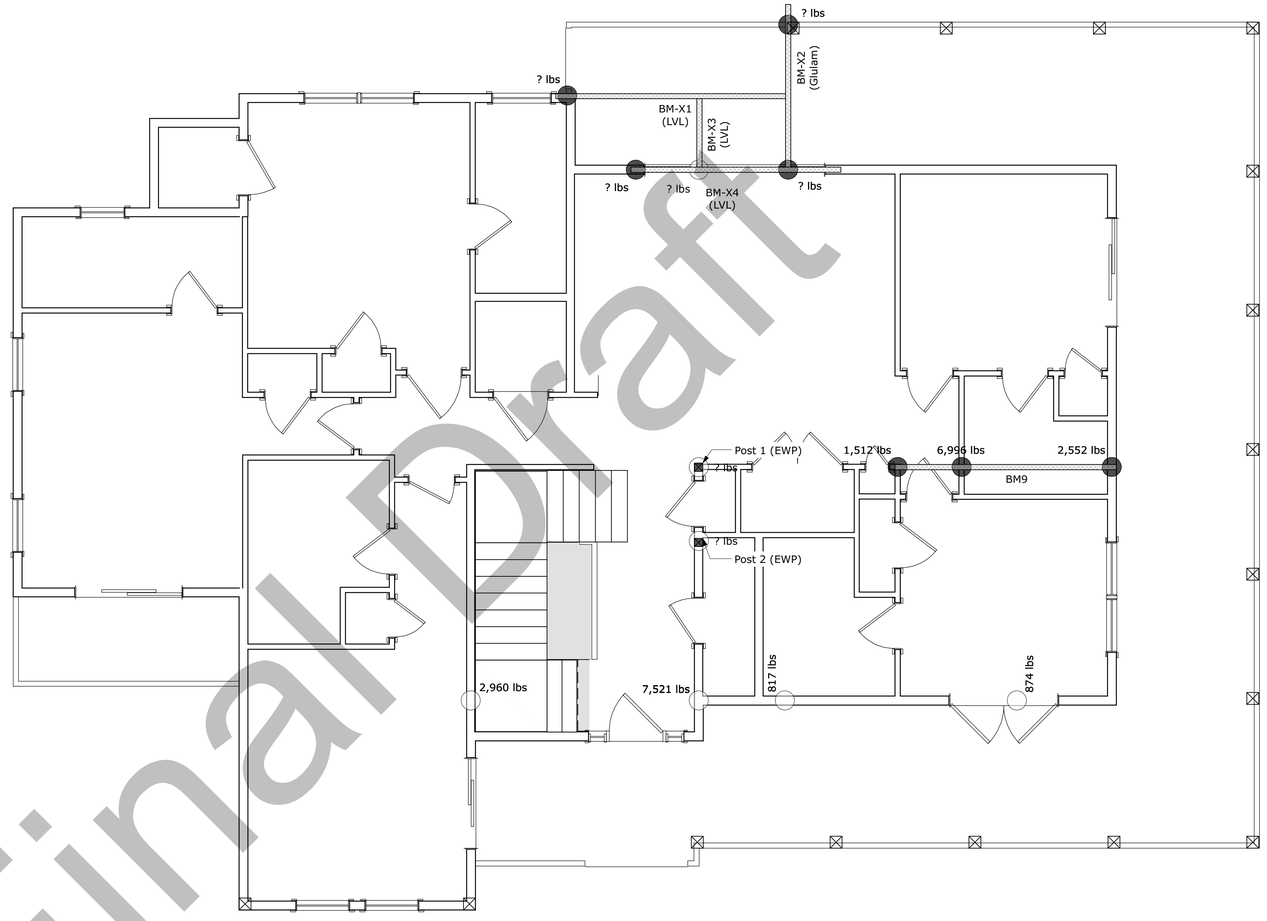
*** See Sheets A-4 for EWP Notes ***

CAUTION (BEARING LOADS)

Proper alignment and installation of floor joist, bearing studs and blocking is vitally important to ensure beams and corresponding POINT LOADS are properly supported. See Beam Installation Guide on Sheet F-1.



EWP PLAN (Excerpt)
3rd FLOOR FRAMING
(See EWP Provider's Drawing)



EWP POINT LOAD PLAN
(Per EWP Provider's Layout Dwg)
3rd FLOOR LEVEL, Scale: 1/4"
(See Sheets A-4 for EWP Notes)

POINT LOADS SHOWN ARE ALSO SHOWN ON THE FLOOR LEVEL BELOW. SEE NEXT SHEET.

ENGINEERED WOOD PRODUCTS (EWP) LAYOUT
(The following info is provided by Kempsville Building Materials)

1 Beam Orientation and Point Loads: Typically ALL beams are oriented left to right (side to side) and front to back (bottom to top) when associating the calc sheets to the layout. So for beams running side to side, the left end on the layout is the left end on the calculation. For beams running front to back, the front end on the layout is the left end on the calculation.

2 Engineered Post are designed for LVLs to be placed in direct contact on the top of post. The bottom of post are designed to be placed on bottom plates, without concern for crushing. Continuous vertical support below the post to the foundation below is required.

Table B1 - Bearing Supports for Beams

The following tables provides requirements for Point Loads (PLs) that exceed 4,000 lbs. All other PLs are less than 4,000 and require 2-2x4 studs to support beam ends. See Beam Plans and Spec Sheets (provided by others) for more information.

Description	Point Load ID	Load (lbs)	Brg Studs Qty	Calc Stress (psi)
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ENGINEERED WOOD PRODUCTS - PLANS

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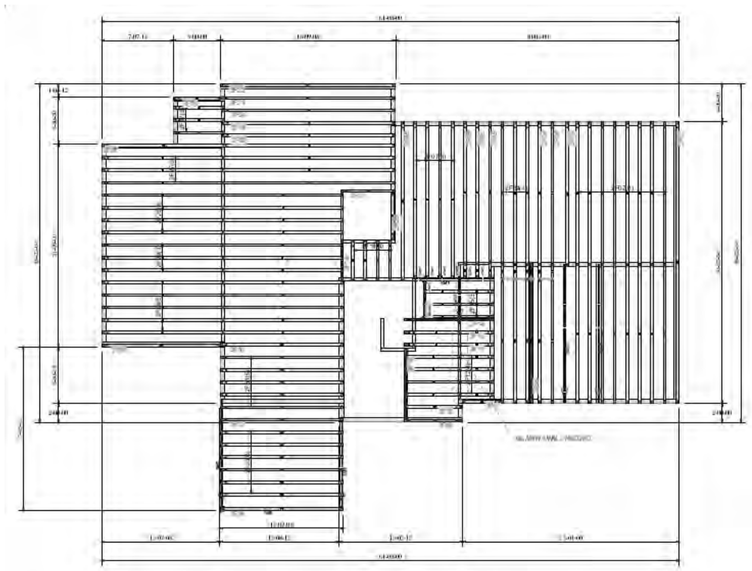
J-3

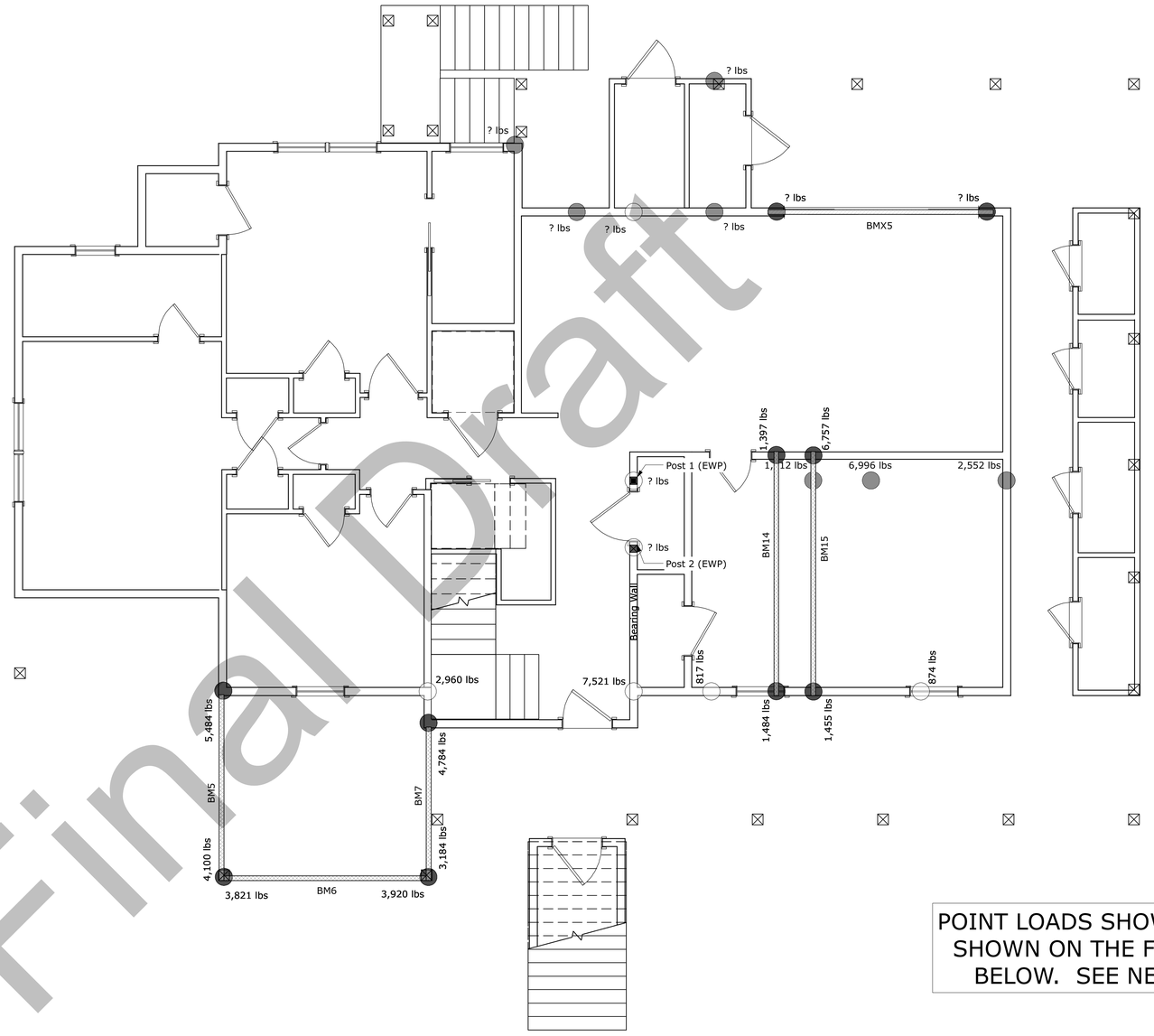
ENGINEERED WOOD PRODUCTS (EWPs)

*** See Sheets A-4 for EWP Notes ***



EWP PLAN (Excerpt)
2nd FLOOR FRAMING
(See EWP Provider's Drawing)

CAUTION (BEARING LOADS)
Proper alignment and installation of floor joist, bearing studs and blocking is vitally important to ensure beams and corresponding POINT LOADS are properly supported. See Beam Installation Guide on Sheet F-1.



POINT LOADS SHOWN ARE ALSO SHOWN ON THE FLOOR LEVEL BELOW. SEE NEXT SHEET.

EWP POINT LOAD PLAN
(Per EWP Provider's Layout Dwg)
2nd FLOOR LEVEL, Scale: 1/4"
(See Sheets A-4 for EWP Notes)

ENGINEERED WOOD PRODUCTS (EWP) LAYOUT
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ENGINEERED WOOD PRODUCTS (EWPs)

*** See Sheets A-4 for EWP Notes ***

CAUTION (BEARING LOADS)

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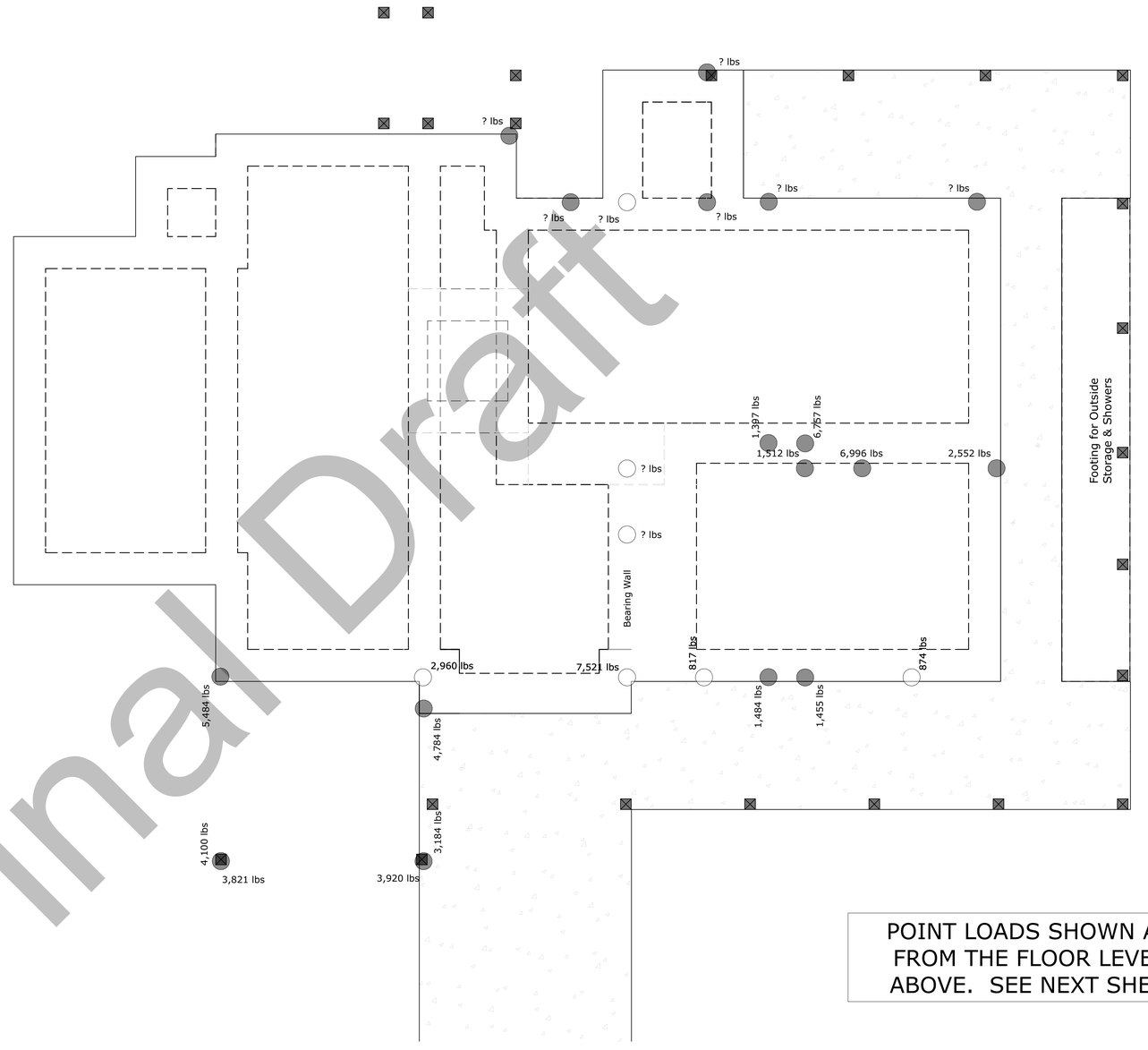

POINT LOADS SHOWN ARE FROM THE FLOOR LEVELS ABOVE. SEE NEXT SHEET.

ENGINEERED WOOD PRODUCTS (EWP) LAYOUT

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EWP POINT LOAD PLAN
(Per EWP Provider's Layout Dwg)
FOUNDATION /1st FLOOR LEVEL, Scale: 1/4"
(See Sheets A-4 for EWP Notes)

ORDERING EWP MATERIALS

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HOUSE PLANS BY DESIGN, LLC

Drawing comply with the 2018 Virginia Uniform Statewide Building Code (USBC).

Authority: 2018 Virginia Building and Fire Code Related Laws Package § 54.1-402.

ENGINEERED WOOD PRODUCTS - PLANS

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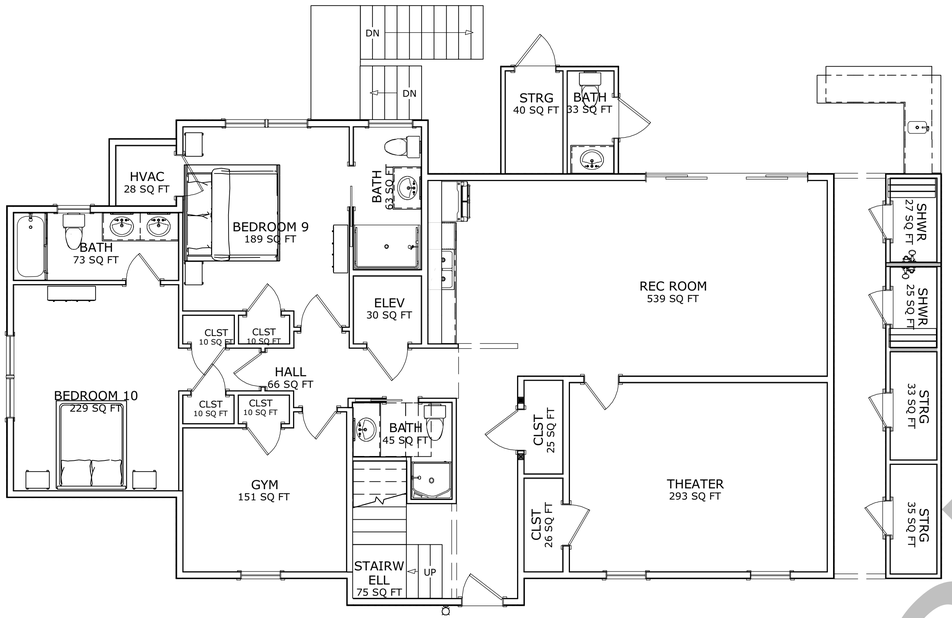
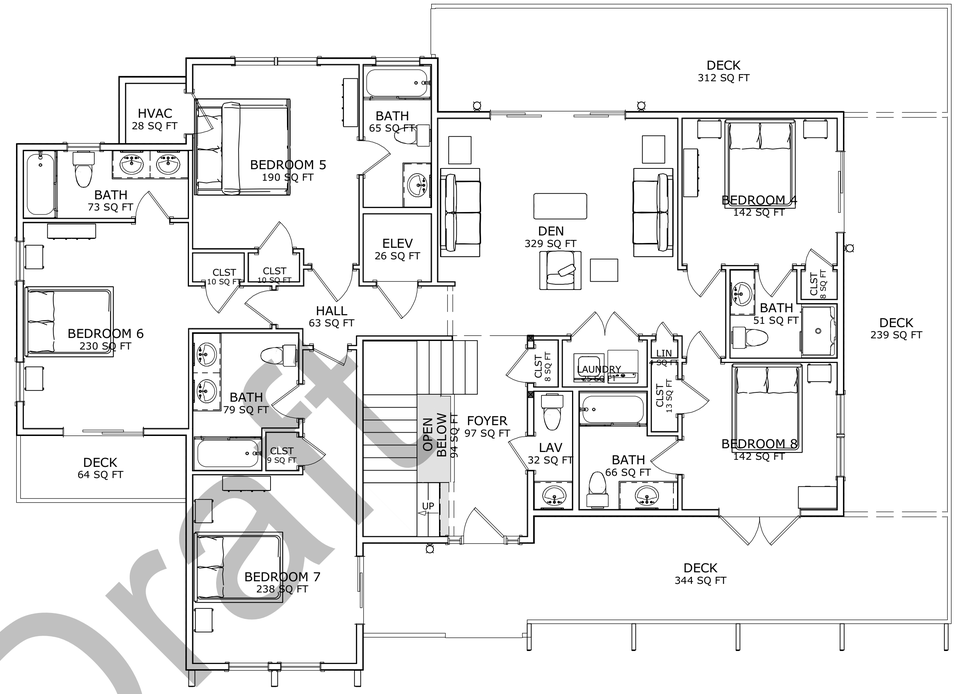
J-5

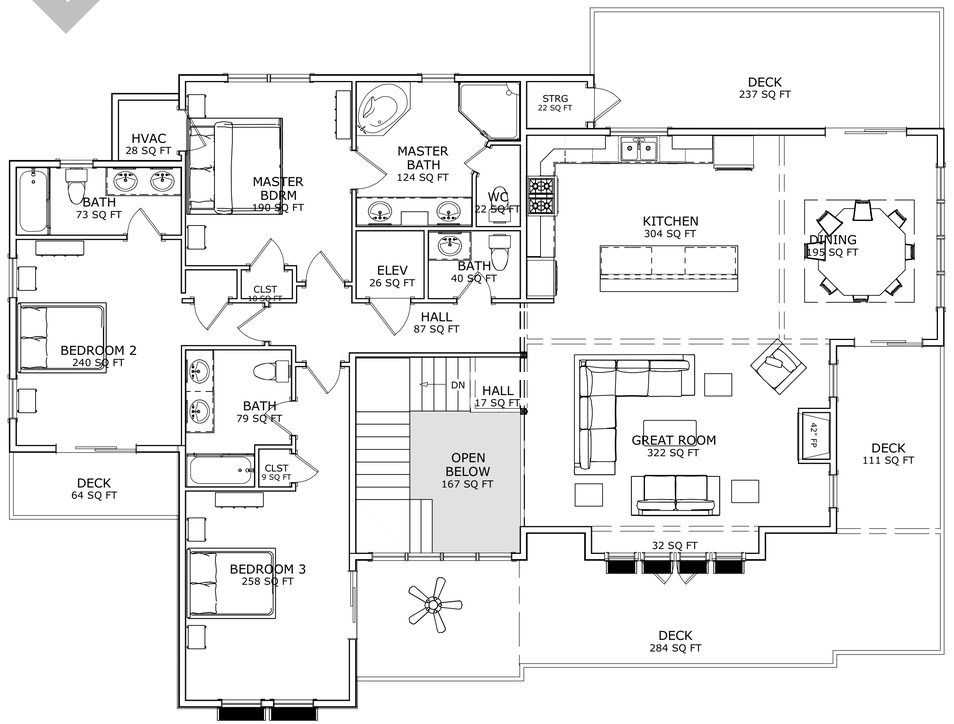
THIS PAGE IS NOT REQUIRED FOR CONSTRUCTION



FURNITURE PLAN, 1st LEVEL, 3/16" SCALE



FURNITURE PLAN, 2nd LEVEL, 3/16" SCALE



FURNITURE PLAN, 3rd LEVEL, 3/16" SCALE

HOUSE PLANS BY DESIGN, LLC

Drawing comply with the 2018 Virginia Uniform Statewide Building Code (USBC).

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PLANS - FURNITURE ARRANGEMENT (NRFC)

DRAWINGS PROVIDED BY:
House Plans by Design, LLC
Designer: Neil Wilson, Engineer
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K-1

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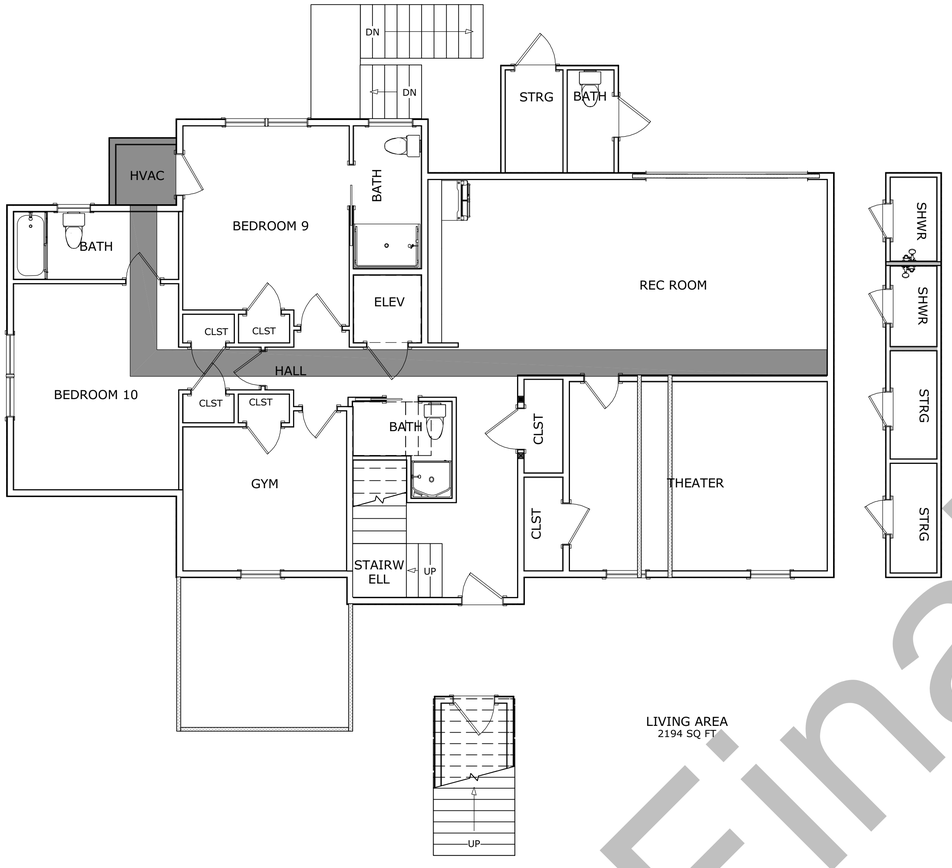
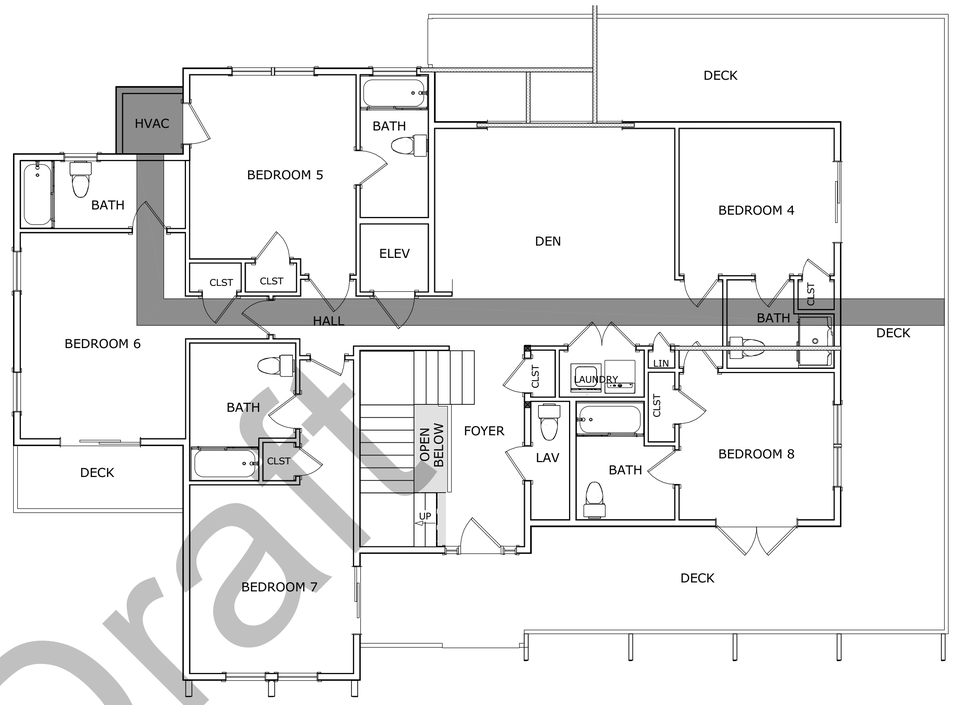
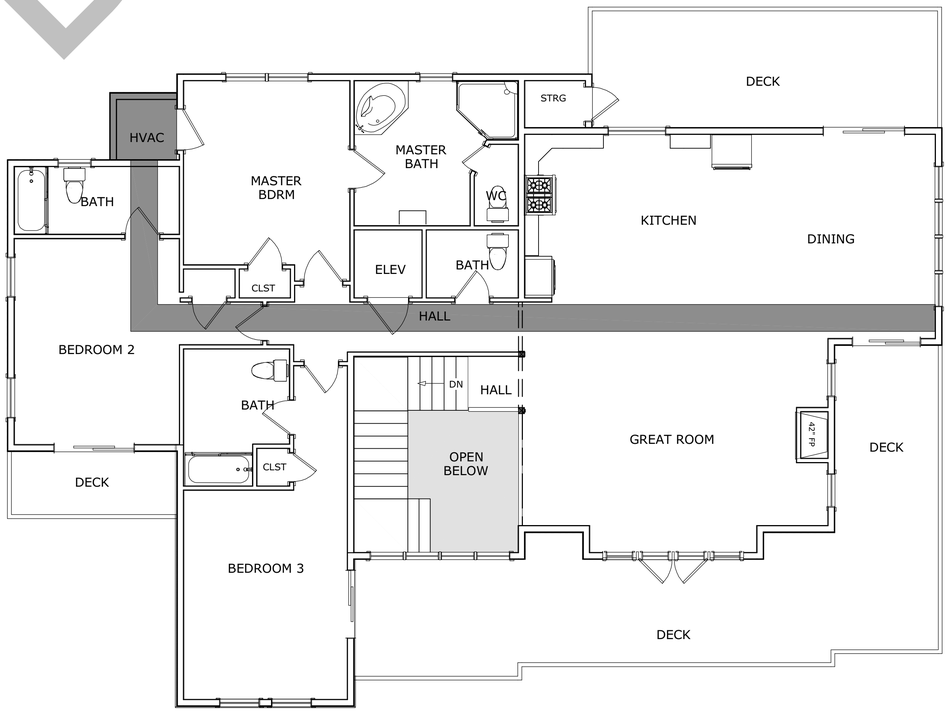


HVAC ARRANGEMENT CONCEPT, **1ST LEVEL**, 3/16" SCALE
DUCT LOCATED IN FLOOR PLATFORM BETWEEN 1ST & 2ND LEVELS
POTENTIALLY FEEDS 1st LEVEL CEILING AND/OR 2nd LEVEL FLOOR



HVAC ARRANGEMENT CONCEPT, **2nd LEVEL**, 3/16" SCALE



HVAC ARRANGEMENT CONCEPT, **3RD LEVEL**, 3/16" SCALE
DUCT LOCATED IN FLOOR PLATFORM BETWEEN 2ND & 3RD LEVELS
POTENTIALLY FEEDS 2ND LEVEL CEILING AND/OR 3RD LEVEL FLOOR

HOUSE PLANS BY DESIGN, LLC

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HVAC ARRANGEMENT CONCEPT (NRFC)

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