

PLANS DESIGNED TO THE 2018 NORTH CAROLINA STATE RESIDENTIAL BUILDING CODE

MEAN ROOF HEIGHT: 26'-10" HEIGHT TO RIDGE: 32'-2"

CLIMATE ZONE	ZONE 3A	ZONE 4A	ZONE 5A
FENESTRATION U-FACTOR	0.35	0.35	0.35
SKYLIGHT U-FACTOR	0.55	0.55	0.55
GLAZED FENESTRATION SHGC	0.30	0.30	0.30
CEILING R-VALUE	38 or 30ci	38 or 30ci	38 or 30ci
WALL R-VALUE	15	15	19
FLOOR R-VALUE	19	19	30
* BASEMENT WALL R-VALUE	5/13	10/15	10/15
** SLAB R-VALUE	0	10	10
* CRAWL SPACE WALL R-VALUE	5/13	10/15	10/19

* 10/13" MEANS R-10 SHEATHING INSULATION OR R-13 CAVITY INSULATION
** INSULATION DEPTH WITH MONOLITHIC SLAB 24" OR FROM INSPECTION GAP TO BOTTOM OF FOOTING; INSULATION DEPTH WITH STEM WALL SLAB 24" OR TO BOTTOM OF FOUNDATION WALL

DESIGNED FOR WIND SPEED OF 120 MPH, 3 SECOND GUST (93 FASTEST MILE) EXPOSURE "B"

COMPONENT & CLADDING DESIGNED FOR THE FOLLOWING LOADS

MEAN ROOF	UP TO 30'	30'-1" TO 35'	35'-1" TO 40'	40'-1" TO 45'
ZONE 1	14.2	-15.0	14.9	-15.8
ZONE 2	14.2	-18.0	14.9	-18.9
ZONE 3	14.2	-18.0	14.9	-18.9
ZONE 4	15.5	-16.0	16.3	-16.8
ZONE 5	15.5	-20.0	16.3	-21.0

DESIGNED FOR WIND SPEED OF 130 MPH, 3 SECOND GUST (101 FASTEST MILE) EXPOSURE "B"

COMPONENT & CLADDING DESIGNED FOR THE FOLLOWING LOADS

MEAN ROOF	UP TO 30'	30'-1" TO 35'	35'-1" TO 40'	40'-1" TO 45'
ZONE 1	16.7	-18.0	17.5	-18.9
ZONE 2	16.7	-21.0	17.5	-22.1
ZONE 3	16.7	-21.0	17.5	-22.1
ZONE 4	18.2	-19.0	19.1	-20.0
ZONE 5	18.2	-24.0	19.1	-25.2

GUARD RAIL NOTES

SECTION R312

R312.1 Where required. Guards shall be located along open-sided walking surfaces, including stairs, ramps and landings, that are located more than 30 inches (762 mm) measured vertically to the floor or grade below at any point within 36 inches (914 mm) horizontally to the edge of the open side. Insect screening shall not be considered as a guard.

R312.2 Height. Required guards at open-sided walking surfaces, including stairs, porches, balconies or landings, shall be not less than 36 inches (914 mm) high measured vertically above the adjacent walking surface, adjacent fixed seating or the line connecting the leading edges of the treads.

Exceptions:

- Guards on the open sides of stairs shall have a height not less than 34 inches (864 mm) measured vertically from a line connecting the leading edges of the treads.
- Where the top of the guard also serves as a handrail on the open sides of stairs, the top of the guard shall not be not less than 34 inches (864 mm) and not more than 38 inches (965 mm) measured vertically from a line connecting the leading edges of the treads.

R312.3 Opening limitations. Required guards shall not have openings from the walking surface to the required guard height which allow passage of a sphere 4 inches (102 mm) in diameter.

Exceptions:

- The triangular openings at the open side of a stair, formed by the riser, tread and bottom rail of a guard, shall not allow passage of a sphere 6 inches (153 mm) in diameter.
- Guards on the open sides of stairs shall not have openings which allow passage of a sphere 4 3/8 inches (111 mm) in diameter.

ROOF VENTILATION

SECTION R806

SQUARE FOOTAGE OF ROOF TO BE VENTED = 1,917 SQ.FT.

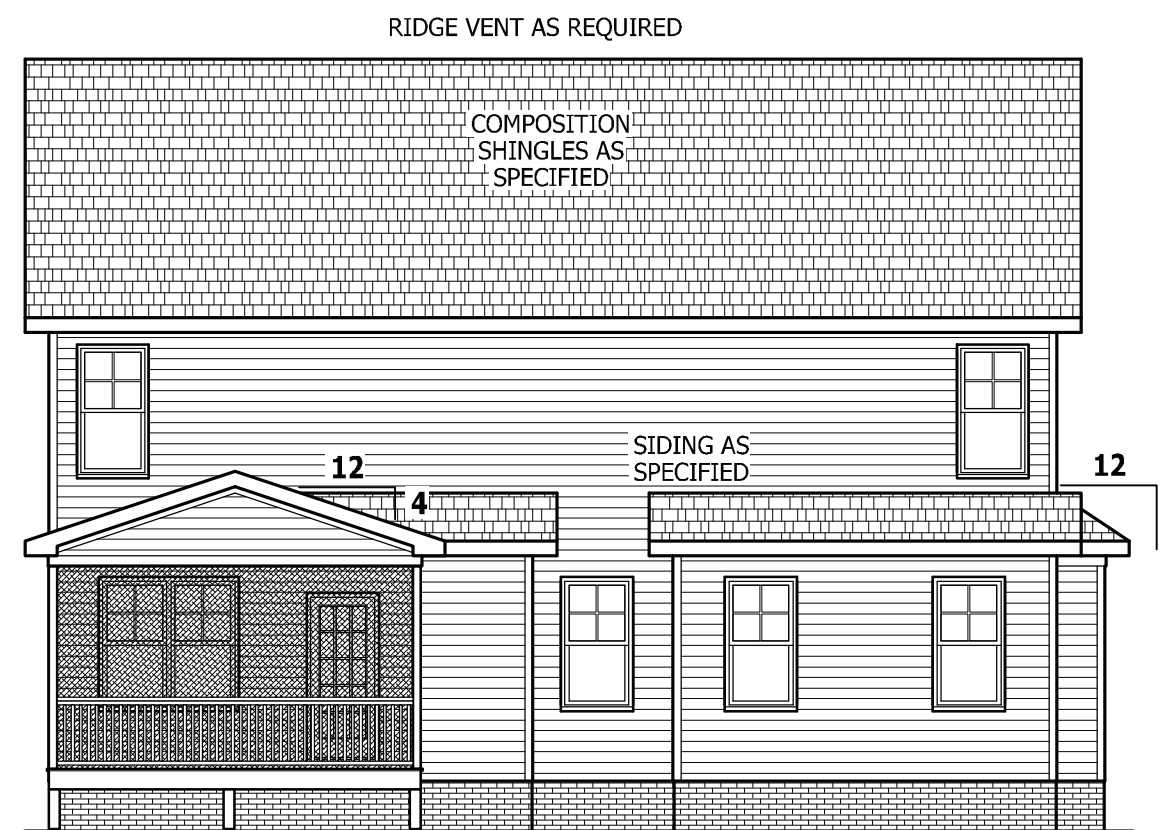
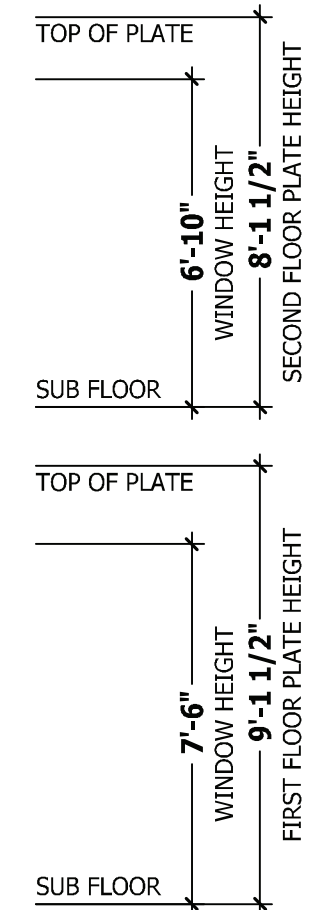
NET FREE CROSS VENTILATION NEEDED:

WITHOUT 50% TO 80% OF VENTING 3'-0" ABOVE EAVE = 12.78 SQ.FT.
WITH 50% TO 80% OF VENTING 3'-0" ABOVE EAVE; OR WITH CLASS I OR II VAPOR RETARDER ON WARM-IN-WINTER SIDE OF CEILING = 6.39 SQ.FT.



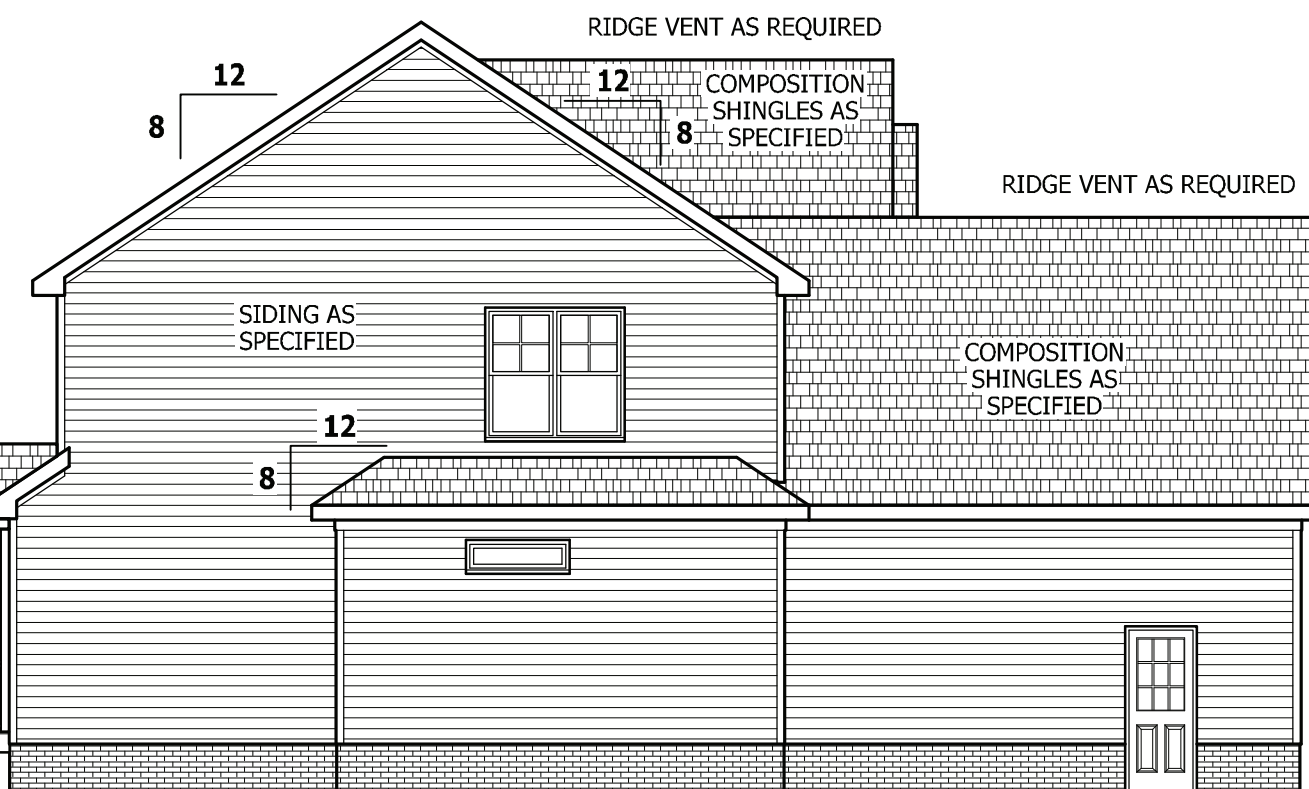
FRONT ELEVATION

SCALE 1/4" = 1'-0"



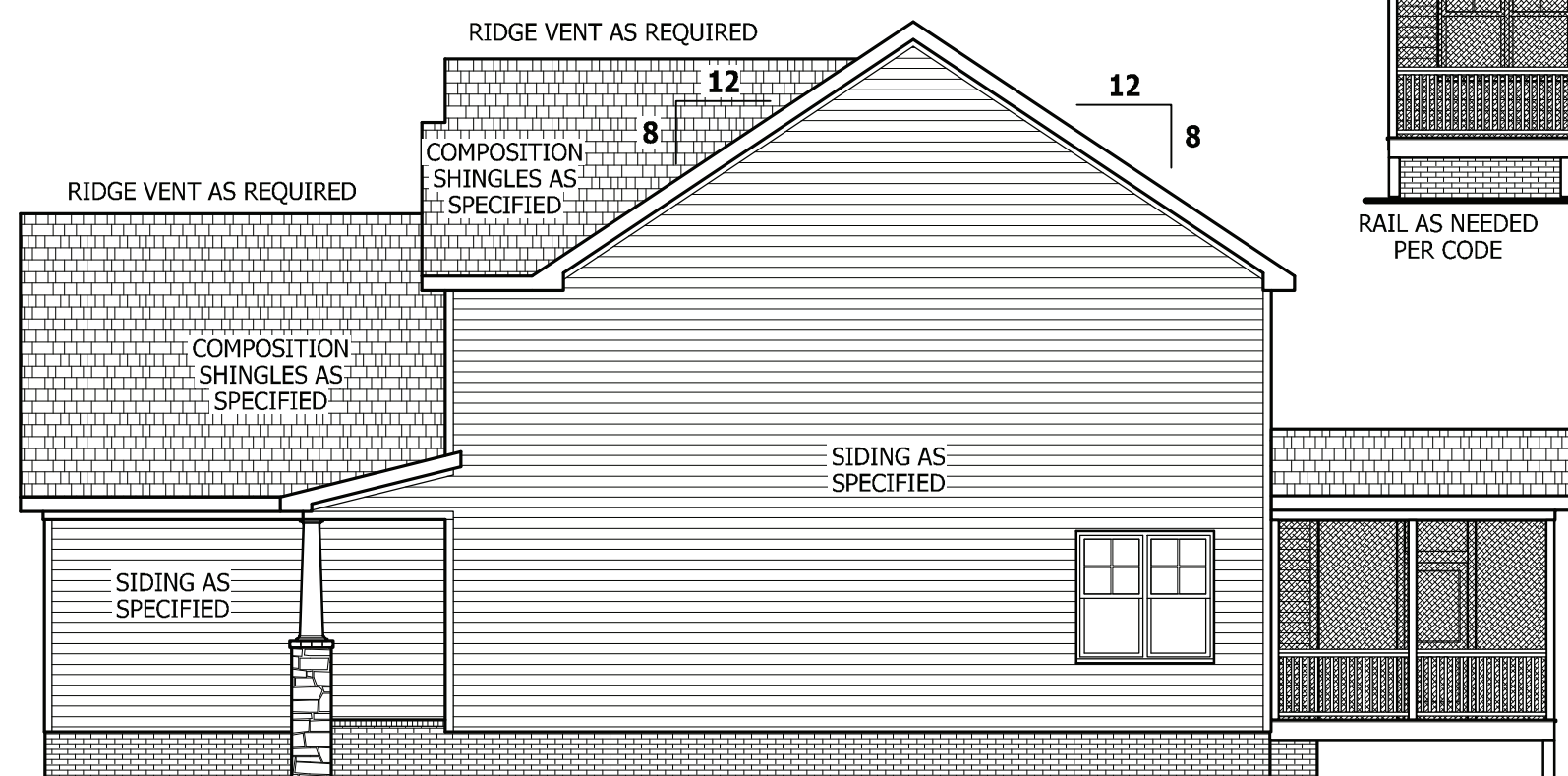
REAR ELEVATION

SCALE 1/8" = 1'-0"



LEFT SIDE ELEVATION

SCALE 1/8" = 1'-0"



RIGHT SIDE ELEVATION

SCALE 1/8" = 1'-0"

AIR LEAKAGE

Section N1102.4

N1102.4.1 Building thermal envelope. The building thermal envelope shall be durably sealed with an air barrier system to limit infiltration. The sealing methods between dissimilar materials shall allow for differential expansion and contraction. For all homes, where present, the following shall be caulked, gasketed, weather stripped or otherwise sealed with an air barrier material or solid material consistent with Appendix E-2.4 of this code:

- Blocking and sealing floor/ceiling systems and under knee walls open to unconditioned or exterior space.
- Capping and sealing shafts or chases, including flue shafts.
- Capping and sealing soffit or dropped ceiling areas.

SQUARE FOOTAGE

HEATED	
FIRST FLOOR	1395 SQ.FT.
SECOND FLOOR	1336 SQ.FT.
TOTAL	2731 SQ.FT.
UNHEATED	
GARAGE	547 SQ.FT.
FRONT PORCH	114 SQ.FT.
SCREENED PORCH	185 SQ.FT.
DECK/PATIO	120 SQ.FT.
STORAGE	205 SQ.FT.
TOTAL	1171 SQ.FT.
UNHEATED OPTIONAL	
THIRD GARAGE	261 SQ.FT.
TOTAL	261 SQ.FT.

PURCHASER MUST VERIFY ALL DIMENSIONS AND CONDITIONS BEFORE CONSTRUCTION BEGINS. HAYNES HOME PLANS, INC. ASSUMES NO LIABILITY FOR CONTRACTORS PRACTICES AND PROCEDURES. CODES AND CONDITIONS MAY VARY WITH LOCATION. A LOCAL DESIGNER, ARCHITECT OR ENGINEER SHOULD BE CONSULTED BEFORE CONSTRUCTION. THESE DRAWING ARE INSTRUMENTS OF SERVICE AND AS SUCH SHALL REMAIN PROPERTY OF THE DESIGNER.

ELEVATIONS
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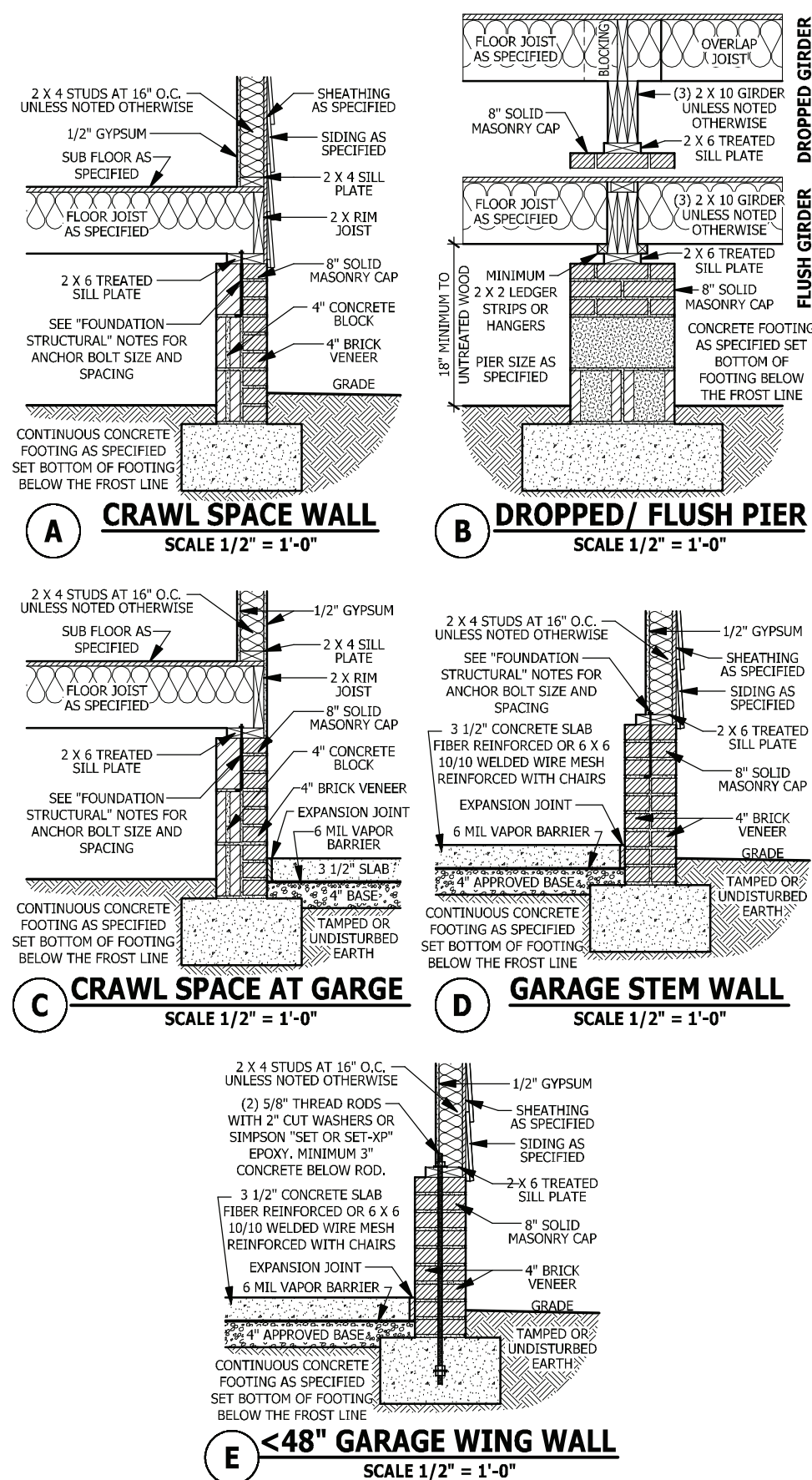
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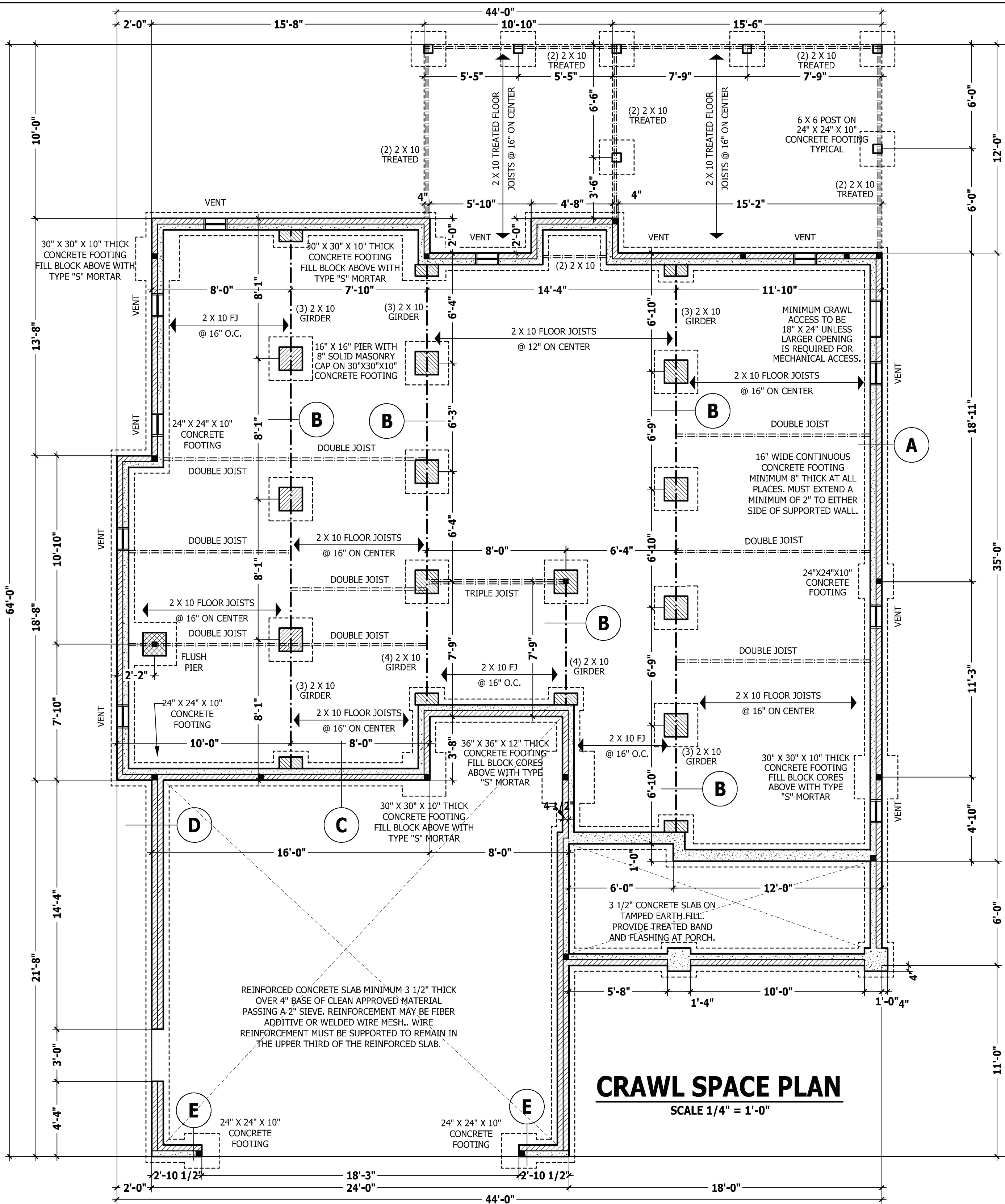


FOUNDATION STRUCTURAL

115 to 130 mph wind zone (1 1/2 to 2 1/2 story)
CONTINUOUS FOOTING: 16" wide and 8" thick minimum. 20" wide minimum at brick veneer. Must extend 2" to either side of supported wall.
GIRDERS: (3) 2 X 10 girder unless noted otherwise.
PIERS: 16" X 16" piers with 8" solid masonry cap on 30" X 30" X 10" concrete footing with maximum pier height of 64" with hollow masonry and 160" with solid masonry.
POINT LOADS: ■ designates significant point load and should have solid blocking to pier, girder or foundation wall.
115 and 120 MPH ANCHORS BOLTS: 1/2" diameter anchor bolts embedded minimum 7", maximum 6'-0" on center, within 12" of plate ends, and minimum two anchor bolts per plate.
130 MPH ANCHORS BOLTS: 1/2" diameter anchor bolts embedded minimum 15", maximum 4'-0" on center, within 12" of plate ends, and minimum two anchor bolts per plate.
CONCRETE: Concrete shall have a minimum 28 day strength of 3000 psi and a maximum 5" slump. Air entrained per table 402.2. All concrete shall be in accordance with ACI standards. All samples for pumping shall be taken from the exit end of the pump.
SOILS: Allowable soil bearing pressure assumed to be 2000 PSF. The contractor must contact a geotechnical engineer and a structural engineer if unsatisfactory subsurface conditions are encountered. The surface area adjacent to the foundation wall shall be provided with adequate drainage, and shall be graded so as to drain surface water away from foundation walls.

WALL VENTED CRAWL SPACES

UNDER-FLOOR SPACE (SECTION R408)
 SQUARE FOOTAGE OF FOUNDATION TO BE VENTED = 1,291 SQ.FT.
 WITHOUT CROSS VENTILATION AREA OF VENTING NEEDED = 8.61 SQ.FT.
 WITH CROSS VENTILATION AREA OF VENTING NEEDED = 0.861 SQ.FT.
 NOTE: NUMBER OF VENTS NEED WILL VARY DEPENDING ON VENTS USED AND CROSS VENTILATION.



CRAWL SPACE PLAN
 SCALE 1/4" = 1'-0"

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CRAWL SPACE PLAN

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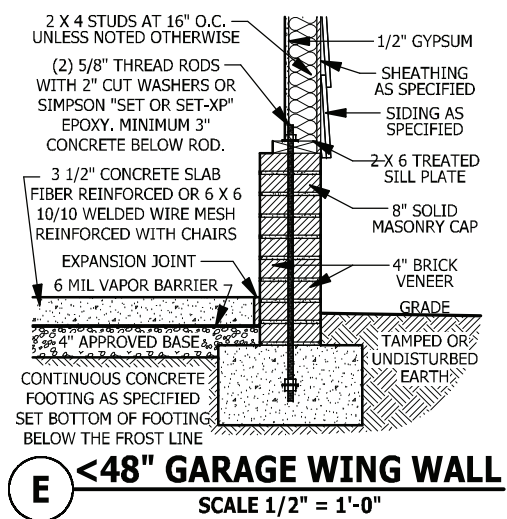
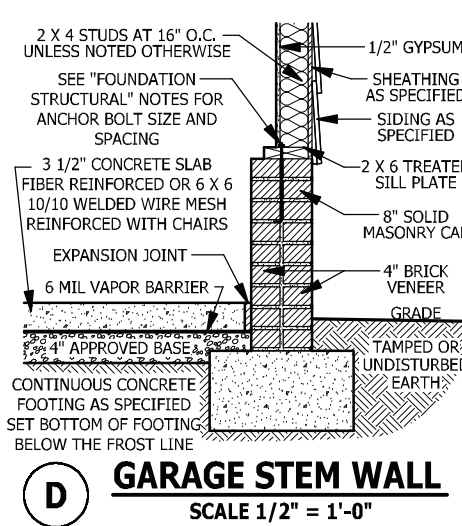
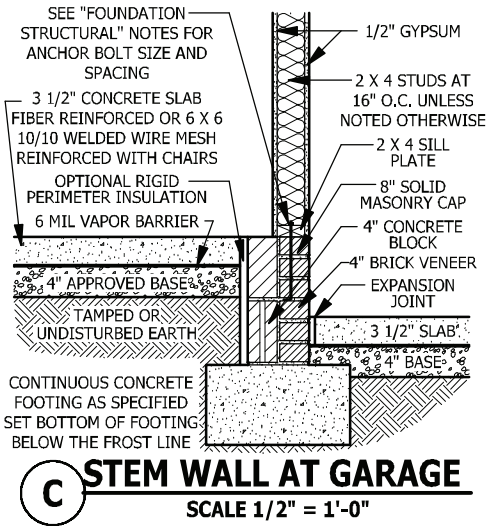
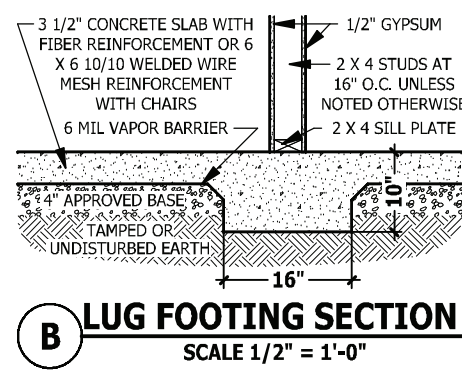
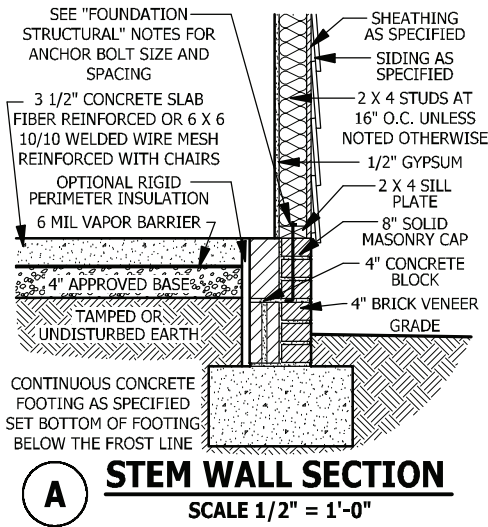
STEM WALL SLAB PLAN
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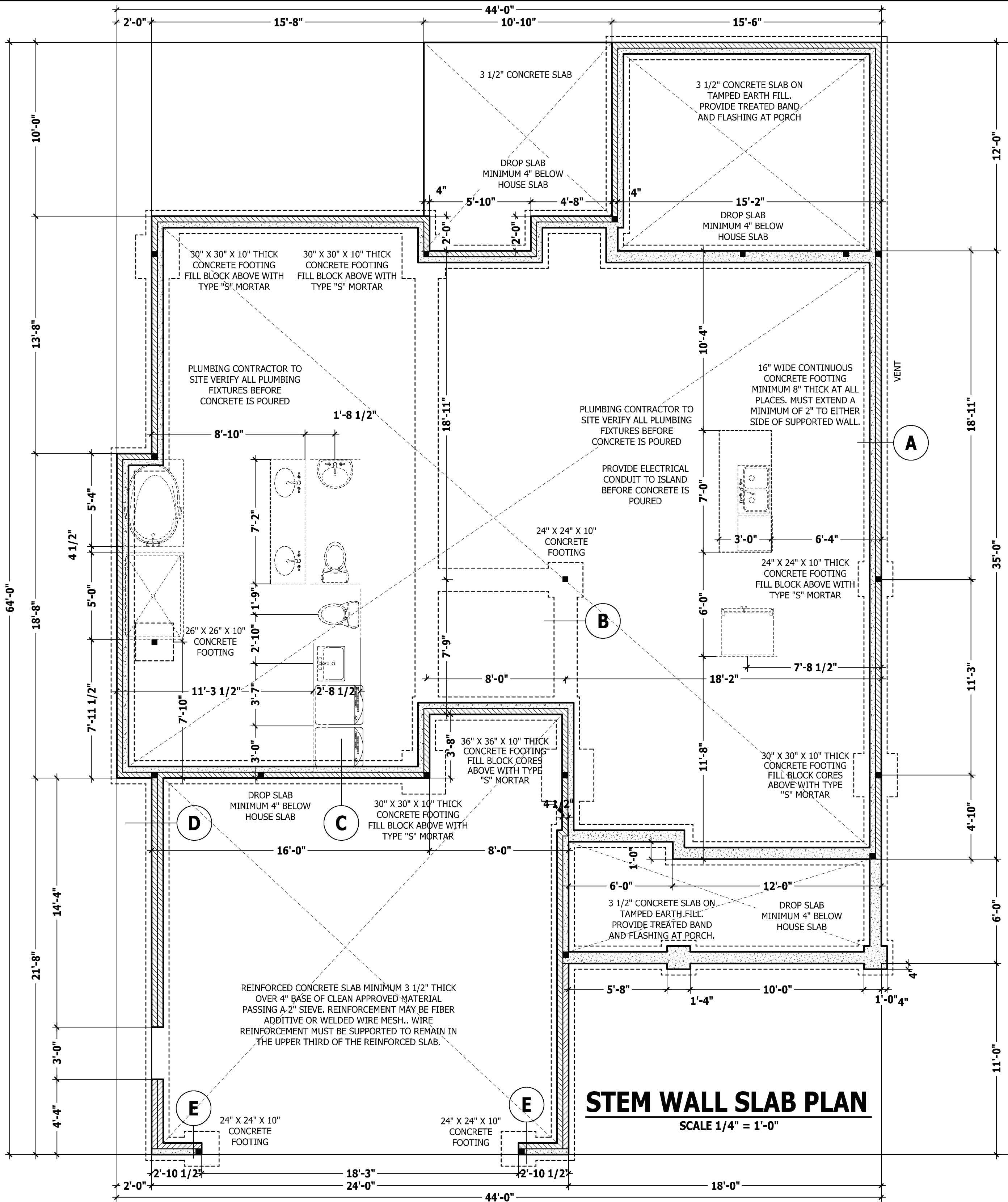
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FOUNDATION STRUCTURAL

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FIRST FLOOR PLAN
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WALL THICKNESSES

Exterior walls and walls adjacent to a garage area are drawn as 4" or as noted 2 X 6 are drawn as 6" to include 1/2" sheathing or gypsum. Subtract 1/2" for stud face.
Interior walls are drawn as 3 1/2" or as noted 2 X 6 are drawn as 5 1/2", and do not include gypsum.

DWELLING / GARAGE SEPARATION

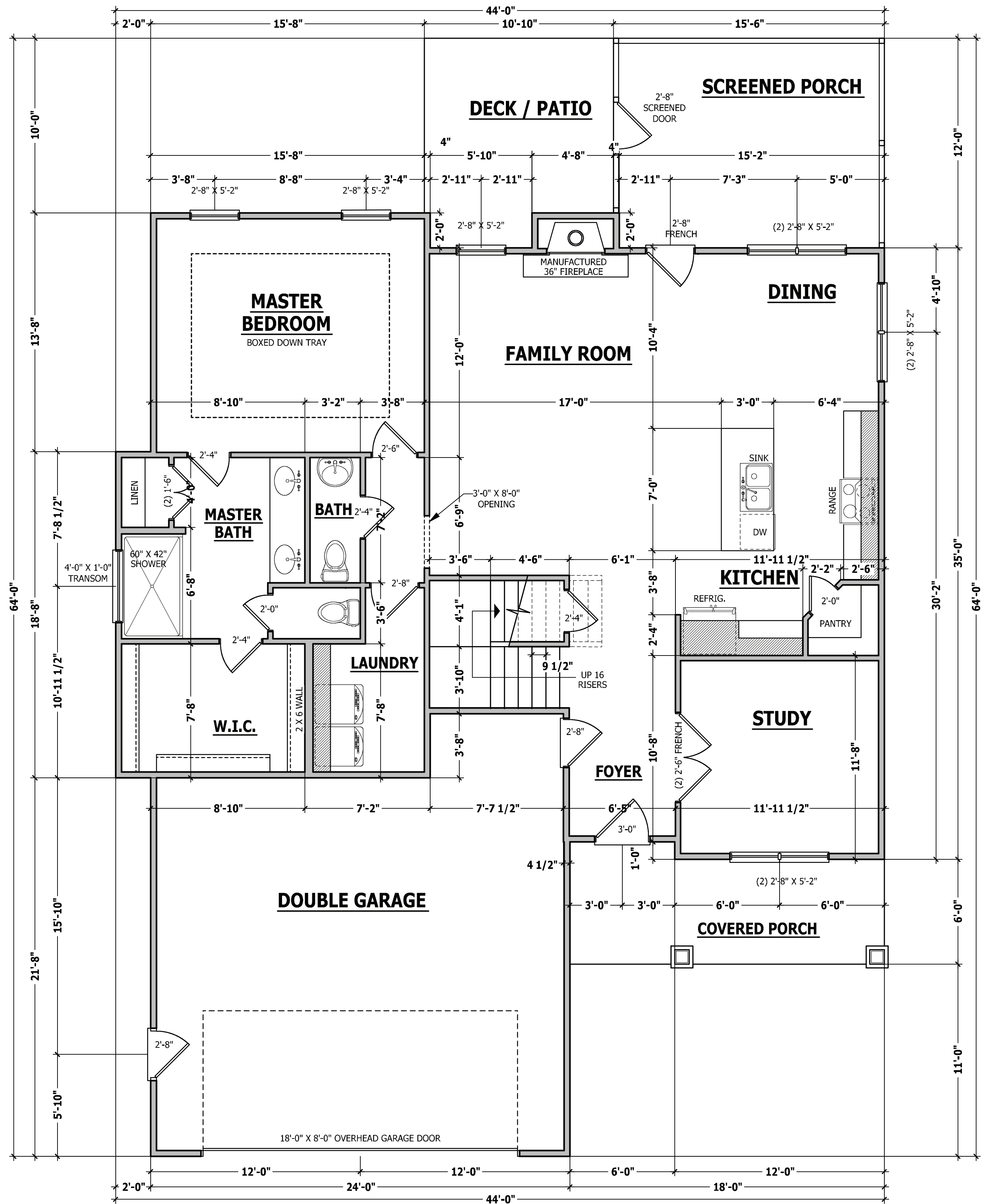
REFER TO SECTIONS R302.5, R302.6, AND R302.7
WALLS. A minimum 1/2" gypsum board must be installed on all walls supporting floor/ceiling assemblies used for separation required by this section.
STAIRS. A minimum of 1/2" gypsum board must be installed on the underside and exposed sides of all stairways.
CEILINGS. A minimum of 1/2" gypsum must be installed on the garage ceiling if there are no habitable room above the garage. If there are habitable room above the garage a minimum of 5/8" type X gypsum board must be installed on the garage ceiling.
OPENING PENETRATIONS. Openings between the garage and residence shall be equipped with solid wood doors not less than 1 3/8 inches (35 mm) in thickness, solid or honeycomb core steel doors not less than 1 3/8 inches (35 mm) thick, or 20-minute fire-rated doors.
DUCT PENETRATIONS. Ducts in the garage and ducts penetrating the walls or ceilings separating the dwelling from the garage shall be constructed of a minimum No. 26 gage (0.48 mm) sheet steel or other approved material and shall have no openings into the garage.
OTHER PENETRATIONS. Penetrations through the separation required in Section R302.6 shall be protected as required by Section R302.11, Item 4.

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FIRST FLOOR PLAN

SCALE 1/4" = 1'-0"



STRUCTURAL NOTES

All construction shall conform to the latest requirements of the 2018 North Carolina Residential Building Code, plus all local codes and regulations. This document in no way shall be construed to supersede the code.

JOB SITE PRACTICES AND SAFETY: Haynes Home Plans, Inc. assumes no liability for contractor practices and procedures or safety program. Haynes Home Plans, Inc. takes no responsibility for the contractor's failure to carry out the construction work in accordance with the contract documents. All members shall be framed, anchored, and braced in accordance with good construction practice and the building code.

DESIGN LOADS	LIVE LOAD (PSF)	DEAD LOAD (PSF)	DEFLECTION (LL)
Attics without storage	10		L/240
Attics with limited storage	20	10	L/360
Attics with fixed stairs	40	10	L/360
Balconies and decks	40	10	L/360
Fire escapes	40	10	L/360
Guardrails and handrails	200	--	--
Guardrail in-fill components	50	--	--
Passenger vehicle garages	50	10	L/360
Rooms other than sleeping	40	10	L/360
Sleeping rooms	30	10	L/360
Stairs	40	--	L/360
Snow	20	--	--

FRAMING LUMBER: All non treated framing lumber shall be SPF #2 (Fb = 875 PSI) or SYP #2 (Fb = 750 PSI) and all treated lumber shall be SYP #2 (Fb = 750 PSI) unless noted otherwise.

ENGINEERED WOOD BEAMS:
Laminated veneer lumber (LVL) = Fb=2600 PSI, Fv=285 PSI, E=1.9x10⁶ PSI
Parallel strand lumber (PSL) = Fb=2900 PSI, Fv=290 PSI, E=2.0x10⁶ PSI
Laminated strand lumber (LSL) Fb=2250 PSI, Fv=400 PSI, E=1.55x10⁶ PSI
Install all connections per manufacturers instructions.

TRUSS AND I-JOIST MEMBERS: All roof truss and I-joist layouts shall be prepared in accordance with this document. Trusses and I-joists shall be installed according to the manufacturer's specifications. Any change in truss or I-joist layout shall be coordinated with Haynes Home Plans, Inc.

LINTELS: Brick lintels shall be 3 1/2" x 3 1/2" x 1/4" steel angle for up to 6'-0" span. 6" x 4" x 5/16" steel angle with 6" leg vertical for spans up to 9'-0" unless noted otherwise. 3 1/2" x 3 1/2" x 1/4" steel angle with 1/2" bolts at 2'-0" on center for spans up to 18'-0" unless noted otherwise.

FLOOR SHEATHING: OSB or CDX floor sheathing minimum 1/2" thick for 16" on center joist spacing, minimum 5/8" thick for 19.2" on center joist spacing, and minimum 3/4" thick for 24" on center joist spacing.

ROOF SHEATHING: OSB or CDX roof sheathing minimum 3/8" thick for 16" on center rafters and 7/16" for 24" on center rafters.

CONCRETE AND SOILS: See foundation notes.

ROOF TRUSS REQUIREMENTS

TRUSS DESIGN. Trusses to be designed and engineered in accordance with these drawings. Any variation with these drawings must be brought to Haynes Home Plan, Inc. attention before construction begins.

KNEE WALL AND CEILING HEIGHTS. All finished knee wall heights and ceiling heights are shown furred down 10" from roof decking for insulation. If for any reason the truss manufacturer fails to meet or exceed designated heel heights, finished knee wall heights, or finished ceiling heights shown on these drawings the finished square footage may vary. Any discrepancy must be brought to Haynes Home Plans, Inc. attention, so a suitable solution can be reached before construction begins. Any variation due to these conditions not being met is the responsibility of the truss manufacturer.

ANCHORAGE. All required anchors for trusses due to uplift or bearing shall meet the requirements as specified on the truss schematics.

BEARING. All trusses shall be designed for bearing on SPF #2 plates or ledgers unless noted otherwise.

Plate Heights & Floor Systems. See elevation page(s) for plate heights and floor system thicknesses.

EXTERIOR HEADERS

- (2) 2 X 6 WITH 1 JACK STUD EACH END
UNLESS NOTED OTHERWISE

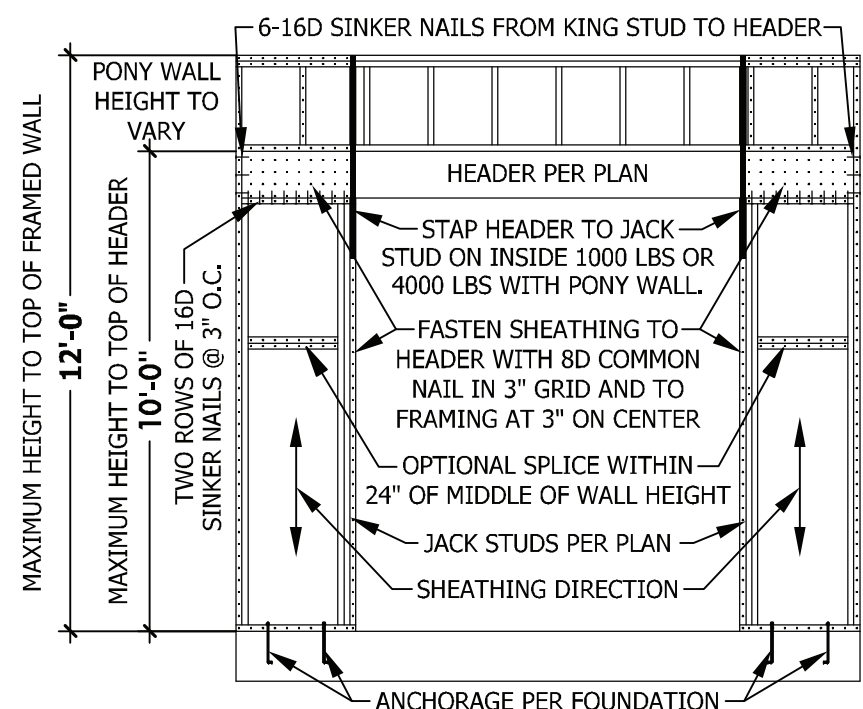
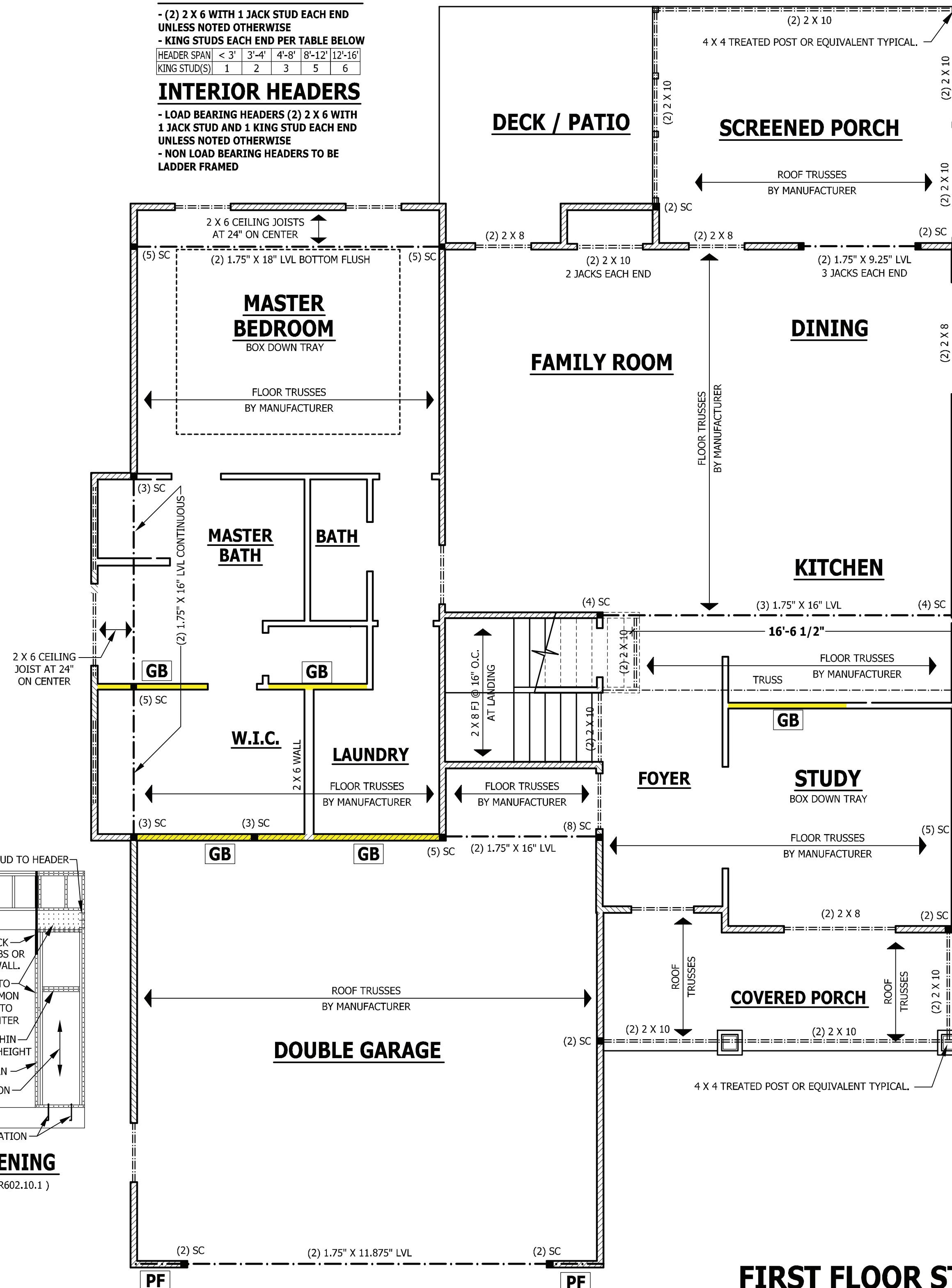
- KING STUDS EACH END PER TABLE BELOW

HEADER SPAN	< 3'	3'-4'	4'-8'	8'-12'	12'-16'
KING STUD(S)	1	2	3	5	6

INTERIOR HEADERS

- LOAD BEARING HEADERS (2) 2 X 6 WITH 1 JACK STUD AND 1 KING STUD EACH END
UNLESS NOTED OTHERWISE

- NON LOAD BEARING HEADERS TO BE LADDER FRAMED



PF PORTAL FRAME AT OPENING

(METHOD PF PER FIGURE AND SECTION R602.10.1)
SCALE 1/4" = 1'-0"

BRACE WALL PANEL NOTES

EXTERIOR WALLS: All exterior walls to be sheathed with CS-WSP or CS-SFB in accordance with section R602.10.3 unless noted otherwise.

GYPSON: All interior sides of exterior walls and both sides interior walls to have 1/2" gypsum installed. When not using method GB gypsum to be fastened per table R702.3.5. Method GB to be fastened per table R602.10.1.

REQUIRED LENGTH OF BRACING: Required brace wall length for each side of the circumscribed rectangle are interpolated per table R602.10.3. Methods CS-WSP and CS-SFB contribute their actual length. Method GB contributes 0.5 its actual length. Method PF contributes 1.5 times its actual length.

HD: 800 lbs hold down hold down device fastened to the edge of the brace wall panel closets to the corner.

Methods Per Table R602.10.1

CS-WSP: Shall be minimum 3/8" OSB or CDX nailed at 6" on center at edges and 12" on center at intermediate supports with 6d common nails or 8d(2 1/2" long x 0.113" diameter).

CS-SFB: Shall be minimum 1/2" structural fiber board nailed at 3" on center at edges and 3" on center at intermediate supports with 1 1/2" long x 0.12" diameter galvanized roofing nails.

GB: Interior walls show as GB are to have minimum 1/2" gypsum board on both sides of the wall fastened at 7" on center at edges and 7" on center at intermediate supports with minimum 5d cooler nails or #6 screws.

PF: Portal frame per figure R602.10.1

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FIRST FLOOR STRUCTURAL

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SQUARE FOOTAGE HEATED	
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SECOND FLOOR	1336 SQ.FT.
TOTAL	2731 SQ.FT.
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SCREENED PORCH	185 SQ.FT.
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FIRST FLOOR STRUCTURAL

SCALE 1/4" = 1'-0"

STRUCTURAL NOTES

All construction shall conform to the latest requirements of the 2018 North Carolina Residential Building Code, plus all local codes and regulations. This document in no way shall be construed to supersede the code.

JOB SITE PRACTICES AND SAFETY: Haynes Home Plans, Inc. assumes no liability for contractor practices and procedures or safety program. Haynes Home Plans, Inc. takes no responsibility for the contractor's failure to carry out the construction work in accordance with the contract documents. All members shall be framed, anchored, and braced in accordance with good construction practice and the building code.

DESIGN LOADS	LIVE LOAD (PSF)	DEAD LOAD (PSF)	DEFLECTION (LL)
Attics without storage	10		L/240
Attics with limited storage	20	10	L/360
Attics with fixed stairs	40	10	L/360
Balconies and decks	40	10	L/360
Fire escapes	40	10	L/360
Guardrails and handrails	200	--	--
Guardrail in-fill components	50	--	--
Passenger vehicle garages	50	10	L/360
Rooms other than sleeping	40	10	L/360
Sleeping rooms	30	10	L/360
Stairs	40	--	L/360
Snow	20	--	--

FRAMING LUMBER: All non treated framing lumber shall be SPF #2 (Fb = 875 PSI) or SYP #2 (Fb = 750 PSI) and all treated lumber shall be SYP #2 (Fb = 750 PSI) unless noted otherwise.

ENGINEERED WOOD BEAMS:

Laminated veneer lumber (LVL) = Fb=2600 PSI, Fv=285 PSI, E=1.9x10⁶ PSI
 Parallel strand lumber (PSL) = Fb=2900 PSI, Fv=290 PSI, E=2.0x10⁶ PSI
 Laminated strand lumber (LSL) = Fb=2250 PSI, Fv=400 PSI, E=1.55x10⁶ PSI
 Install all connections per manufacturers instructions.

TRUSS AND I-JOIST MEMBERS: All roof truss and I-joist layouts shall be prepared in accordance with this document. Trusses and I-joists shall be installed according to the manufacturer's specifications. Any change in truss or I-joist layout shall be coordinated with Haynes Homes Plans, Inc.

LINTELS: Brick lintels shall be 3 1/2" x 3 1/2" x 1/4" steel angle for up to 6'-0" span. 6" x 4" x 5/16" steel angle with 6" leg vertical for spans up to 9'-0" unless noted otherwise. 3 1/2" x 3 1/2" x 1/4" steel angle with 1/2" bolts at 2'-0" on center for spans up to 18'-0" unless noted otherwise.

FLOOR SHEATHING: OSB or CDX floor sheathing minimum 1/2" thick for 16" on center joist spacing, minimum 5/8" thick for 19.2" on center joist spacing, and minimum 3/4" thick for 24" on center joist spacing.

ROOF SHEATHING: OSB or CDX roof sheathing minimum 3/8" thick for 16" on center rafters and 7/16" for 24" on center rafters.

CONCRETE AND SOILS: See foundation notes.

ROOF TRUSS REQUIREMENTS

TRUSS DESIGN. Trusses to be designed and engineered in accordance with these drawings. Any variation with these drawings must be brought to Haynes Home Plan, Inc. attention before construction begins.

KNEE WALL AND CEILING HEIGHTS. All finished knee wall heights and ceiling heights are shown furred down 10" from roof decking for insulation. If for any reason the truss manufacturer fails to meet or exceed designated heel heights, finished knee wall heights, or finished ceiling heights shown on these drawings the finished square footage may vary. Any discrepancy must be brought to Haynes Home Plans, Inc. attention, so a suitable solution can be reached before construction begins. Any variation due to these conditions not being met is the reasonability of the truss manufacturer.

ANCHORAGE. All required anchors for trusses due to uplift or bearing shall meet the requirements as specified on the truss schematics.

BEARING. All trusses shall be designed for bearing on SPF #2 plates or ledgers unless noted otherwise.

Plate Heights & Floor Systems. See elevation page(s) for plate heights and floor system thicknesses.

EXTERIOR HEADERS

- (2) 2 X 6 WITH 1 JACK STUD EACH END UNLESS NOTED OTHERWISE

- KING STUDS EACH END PER TABLE BELOW

HEADER SPAN	< 3'	3'-4'	4'-8'	8'-12'	12'-16'
KING STUD(S)	1	2	3	5	6

INTERIOR HEADERS

- LOAD BEARING HEADERS (2) 2 X 6 WITH 1 JACK STUD AND 1 KING STUD EACH END UNLESS NOTED OTHERWISE

- NON LOAD BEARING HEADERS TO BE LADDER FRAMED

ATTIC ACCESS

SECTION R807

R807.1 Attic access. An attic access opening shall be provided to attic areas that exceed 400 square feet (37.16 m²) and have a vertical height of 60 inches (1524 mm) or greater. The net clear opening shall not be less than 20 inches by 30 inches (508 mm by 762 mm) and shall be located in a hallway or other readily accessible location. A 30-inch (762 mm) minimum unobstructed headroom in the attic space shall be provided at some point above the access opening. See Section M1305.1.3 for access requirements where mechanical equipment is located in attics.

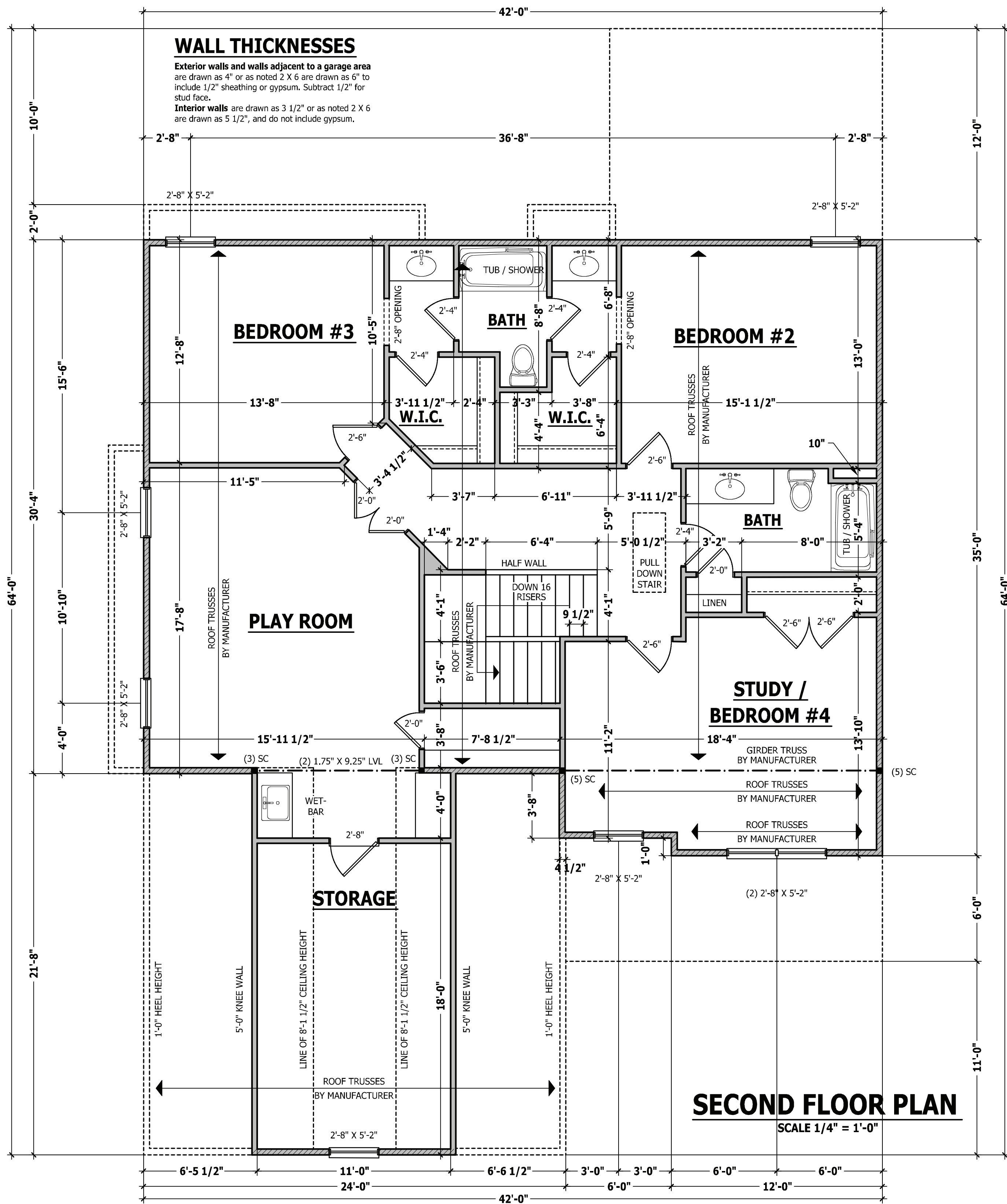
Exceptions:

1. Concealed areas not located over the main structure including porches, areas behind knee walls, dormers, bay windows, etc. are not required to have access.
2. Pull down stair treads, stringers, handrails, and hardware may protrude into the net clear opening.

WALL THICKNESSES

Exterior walls and walls adjacent to a garage area are drawn as 4" or as noted 2 X 6 are drawn as 6" to include 1/2" sheathing or gypsum. Subtract 1/2" for stud face.

Interior walls are drawn as 3 1/2" or as noted 2 X 6 are drawn as 5 1/2", and do not include gypsum.



SECOND FLOOR PLAN

SCALE 1/4" = 1'-0"

PURCHASER MUST VERIFY ALL DIMENSIONS AND CONDITIONS BEFORE CONSTRUCTION BEGINS. HAYNES HOME PLANS, INC. ASSUMES NO LIABILITY FOR CONTRACTOR PRACTICES AND PROCEDURES. CODES AND CONDITIONS MAY VARY WITH LOCATION. A LOCAL DESIGNER, ARCHITECT OR ENGINEER SHOULD BE CONSULTED BEFORE CONSTRUCTION. THESE DRAWINGS ARE INSTRUMENTS OF SERVICE AND AS SUCH SHALL REMAIN PROPERTY OF THE DESIGNER.

SECOND FLOOR PLAN

Mayview



SQUARE FOOTAGE HEATED	
FIRST FLOOR	1395 SQ.FT.
SECOND FLOOR	1336 SQ.FT.
TOTAL	2731 SQ.FT.
UNHEATED	
GARAGE	547 SQ.FT.
FRONT PORCH	114 SQ.FT.
SCREENED PORCH	185 SQ.FT.
DECK/PATIO	129 SQ.FT.
STORAGE	205 SQ.FT.
TOTAL	1171 SQ.FT.
UNHEATED OPTIONAL	
THIRD GARAGE	261 SQ.FT.
TOTAL	261 SQ.FT.

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11/12/2019

191017B

PAGE 5 OF 7

PURCHASER MUST VERIFY ALL DIMENSIONS AND CONDITIONS BEFORE CONSTRUCTION BEGINS.
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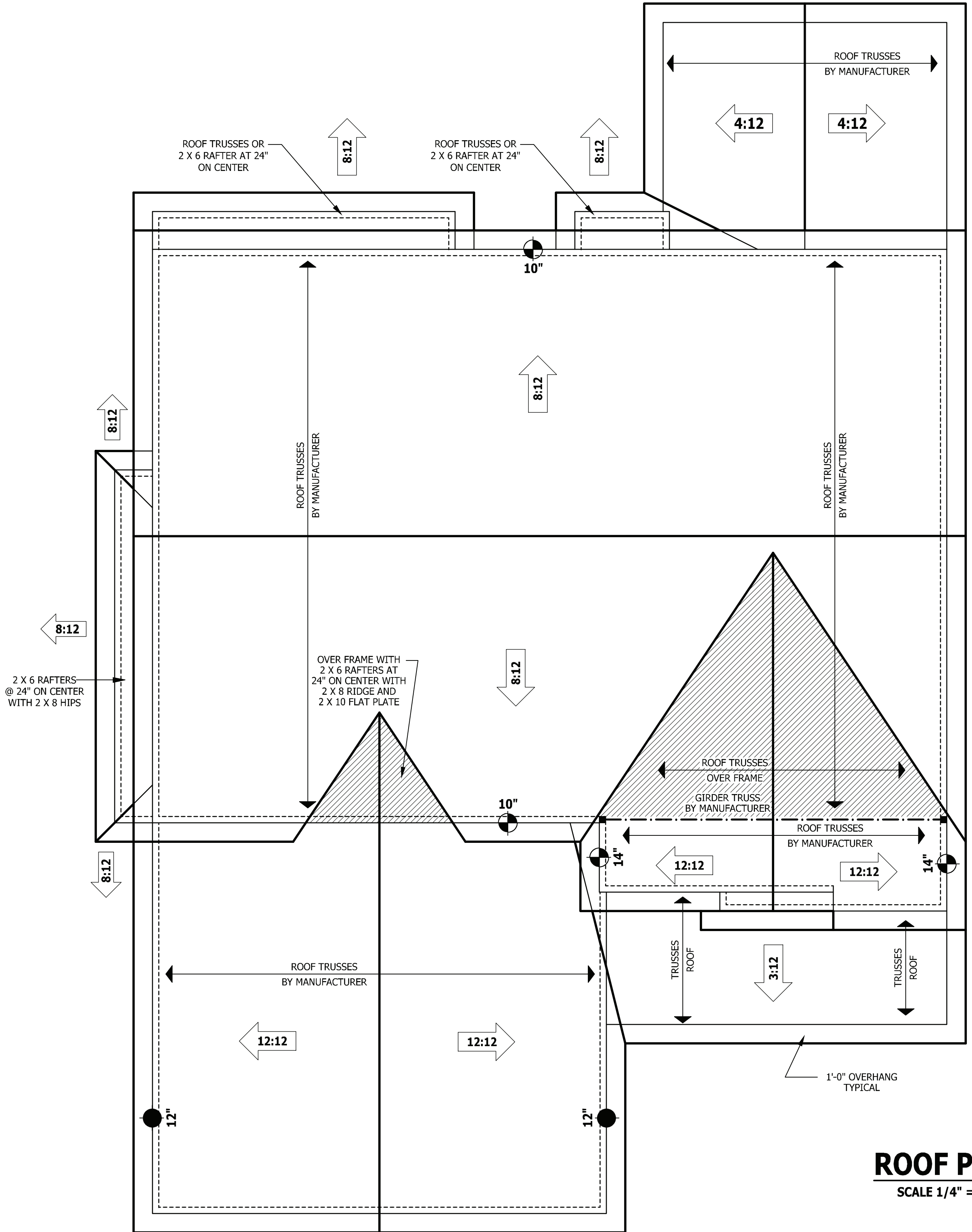
ROOF PLAN
Mayview



SQUARE FOOTAGE	
HEATED	
FIRST FLOOR	1395 SQ.FT.
SECOND FLOOR	1336 SQ.FT.
TOTAL	2731 SQ.FT.
UNHEATED	
GARAGE	547 SQ.FT.
FRONT PORCH	114 SQ.FT.
SCREENED PORCH	185 SQ.FT.
DECK/PATIO	120 SQ.FT.
STORAGE	205 SQ.FT.
TOTAL	1171 SQ.FT.
UNHEATED OPTIONAL	
THIRD GARAGE	261 SQ.FT.
TOTAL	261 SQ.FT.

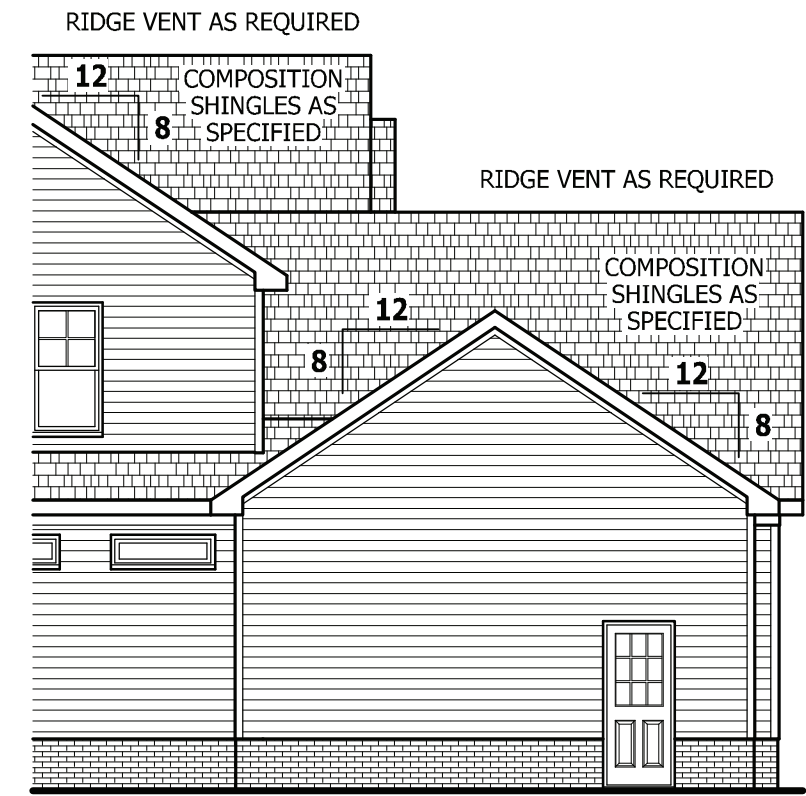
ROOF TRUSS REQUIREMENTS

TRUSS DESIGN. Trusses to be designed and engineered in accordance with these drawings. Any variation with these drawings must be brought to Haynes Home Plan, Inc. attention before construction begins.
KNEE WALL AND CEILING HEIGHTS. All finished knee wall heights and ceiling heights are shown furred down 10" from roof decking for insulation. If for any reason the truss manufacturer fails to meet or exceed designated heel heights, finished knee wall heights, or finished ceiling heights shown on these drawings the finished square footage may vary. Any discrepancy must be brought to Haynes Home Plans, Inc. attention, so a suitable solution can be reached before construction begins. Any variation due to these conditions not being met is the responsibility of the truss manufacturer.
ANCHORAGE. All required anchors for trusses due to uplift or bearing shall meet the requirements as specified on the truss schematics.
BEARING. All trusses shall be designed for bearing on SPF #2 plates or ledgers unless noted otherwise.
Plate Heights & Floor Systems. See elevation page(s) for plate heights and floor system thicknesses.

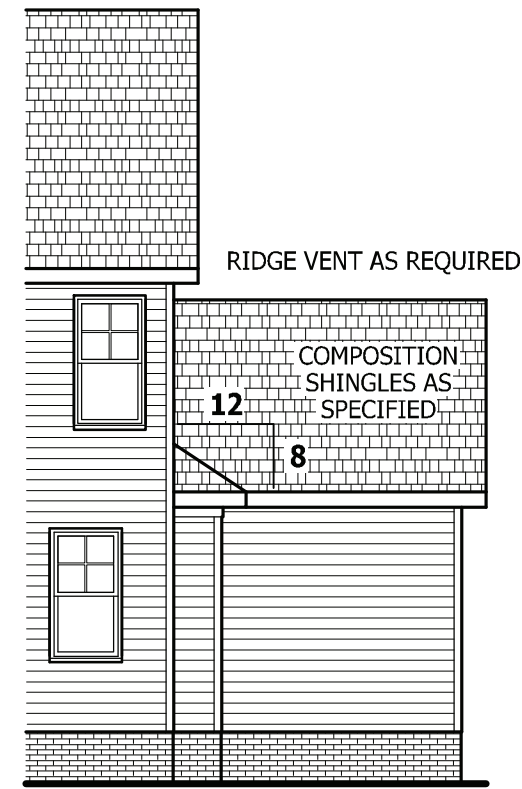


ROOF PLAN
 SCALE 1/4" = 1'-0"

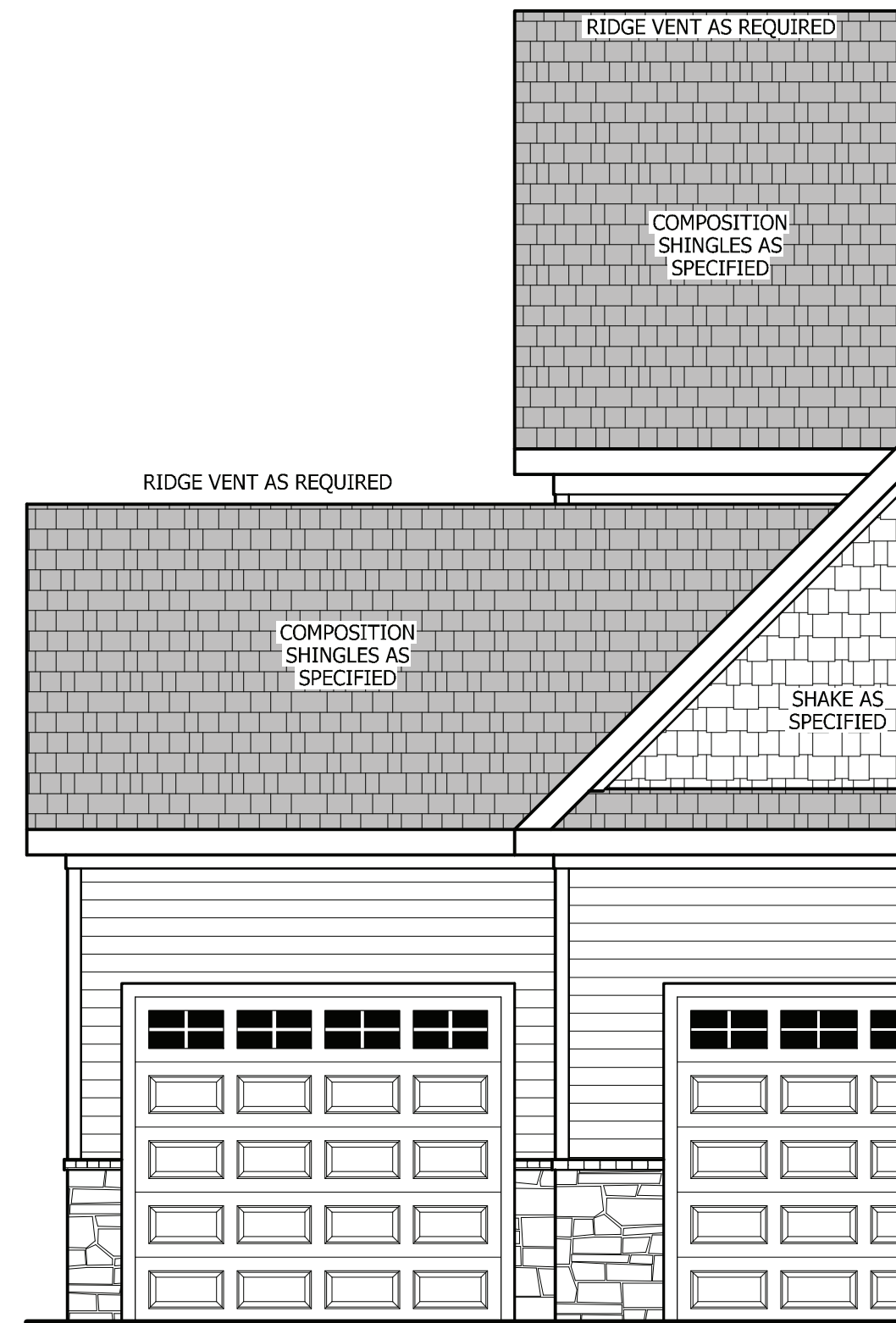
PURCHASER MUST VERIFY ALL DIMENSIONS AND CONDITIONS BEFORE CONSTRUCTION BEGINS.
 HAYNES HOME PLANS, INC. ASSUMES NO LIABILITY FOR CONTRACTORS PRACTICES AND PROCEDURES.
 CODES AND CONDITIONS MAY VARY WITH LOCATION. A LOCAL DESIGNER, ARCHITECT OR ENGINEER SHOULD BE CONSULTED BEFORE CONSTRUCTION.
 THESE DRAWING ARE INSTRUMENTS OF SERVICE AND AS SUCH SHALL REMAIN PROPERTY OF THE DESIGNER.



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

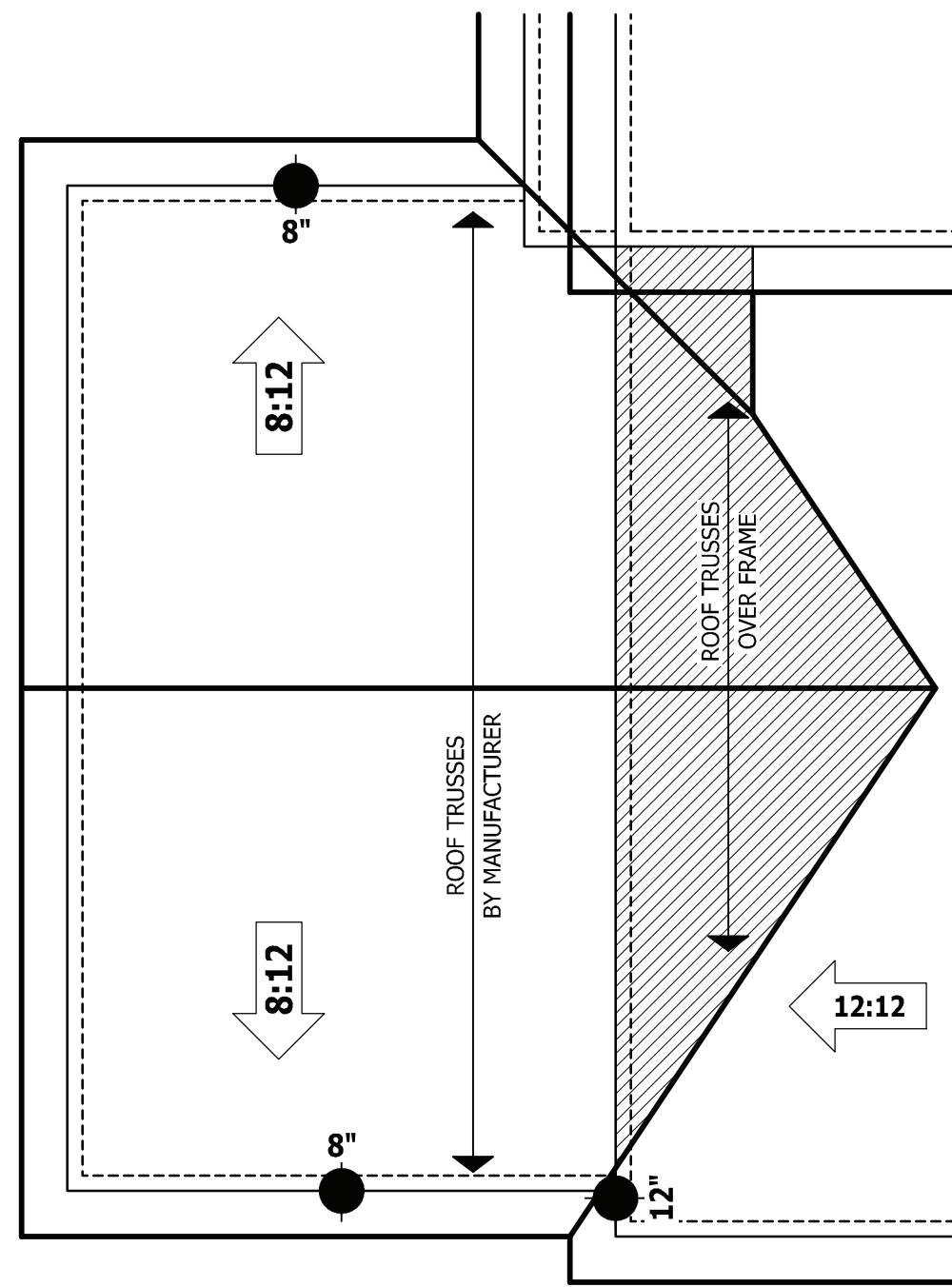
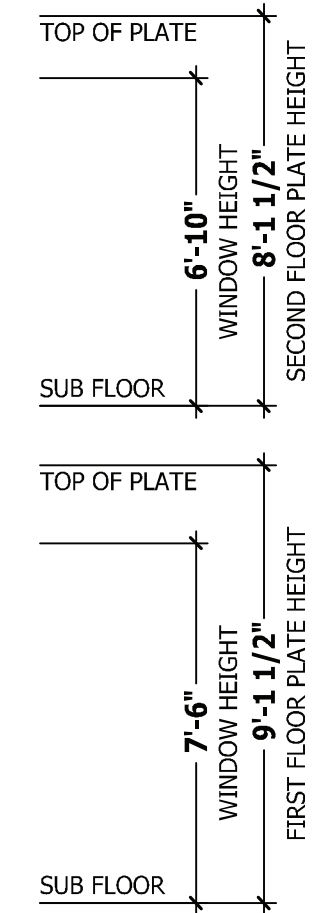


REAR ELEVATION
 SCALE 1/8" = 1'-0"

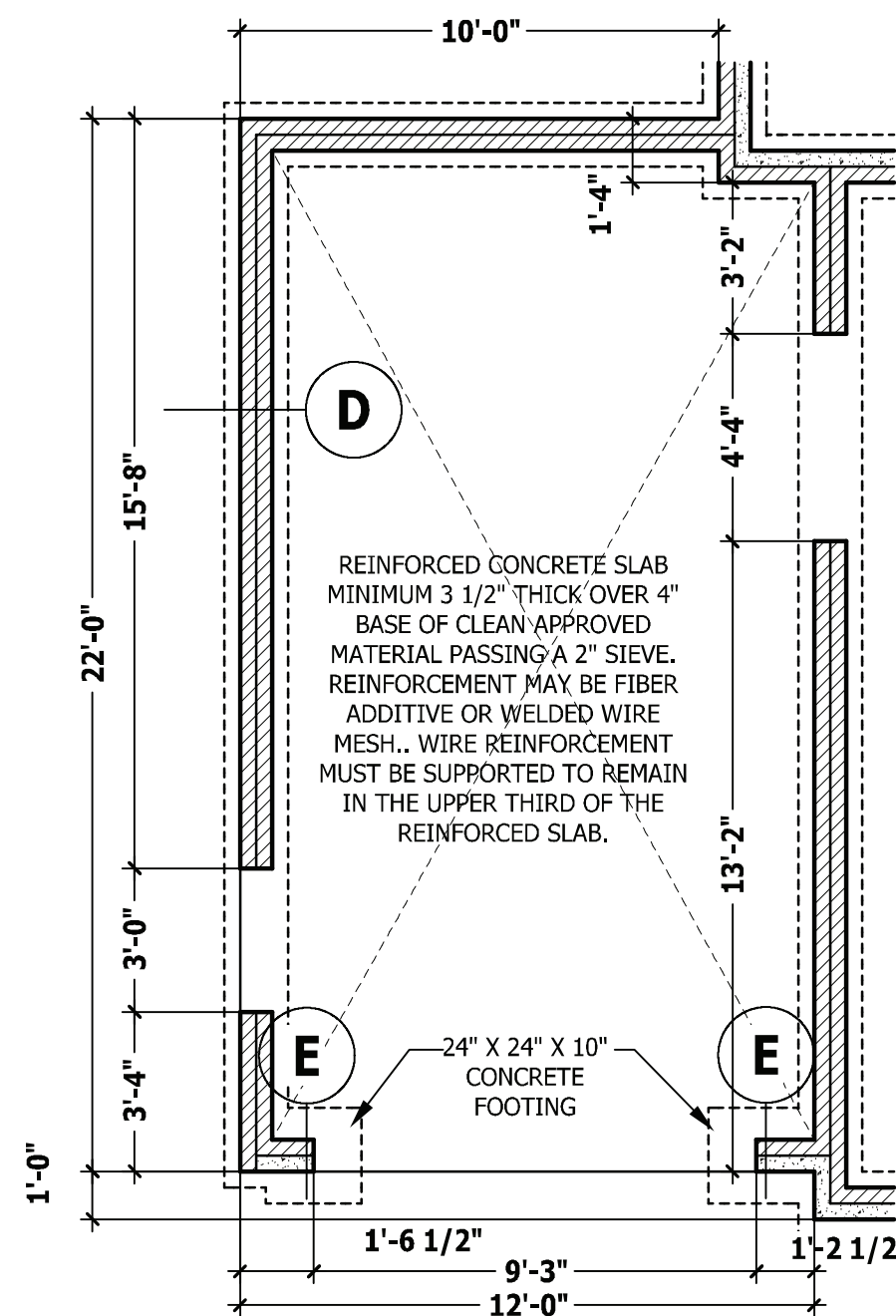


FRONT ELEVATION
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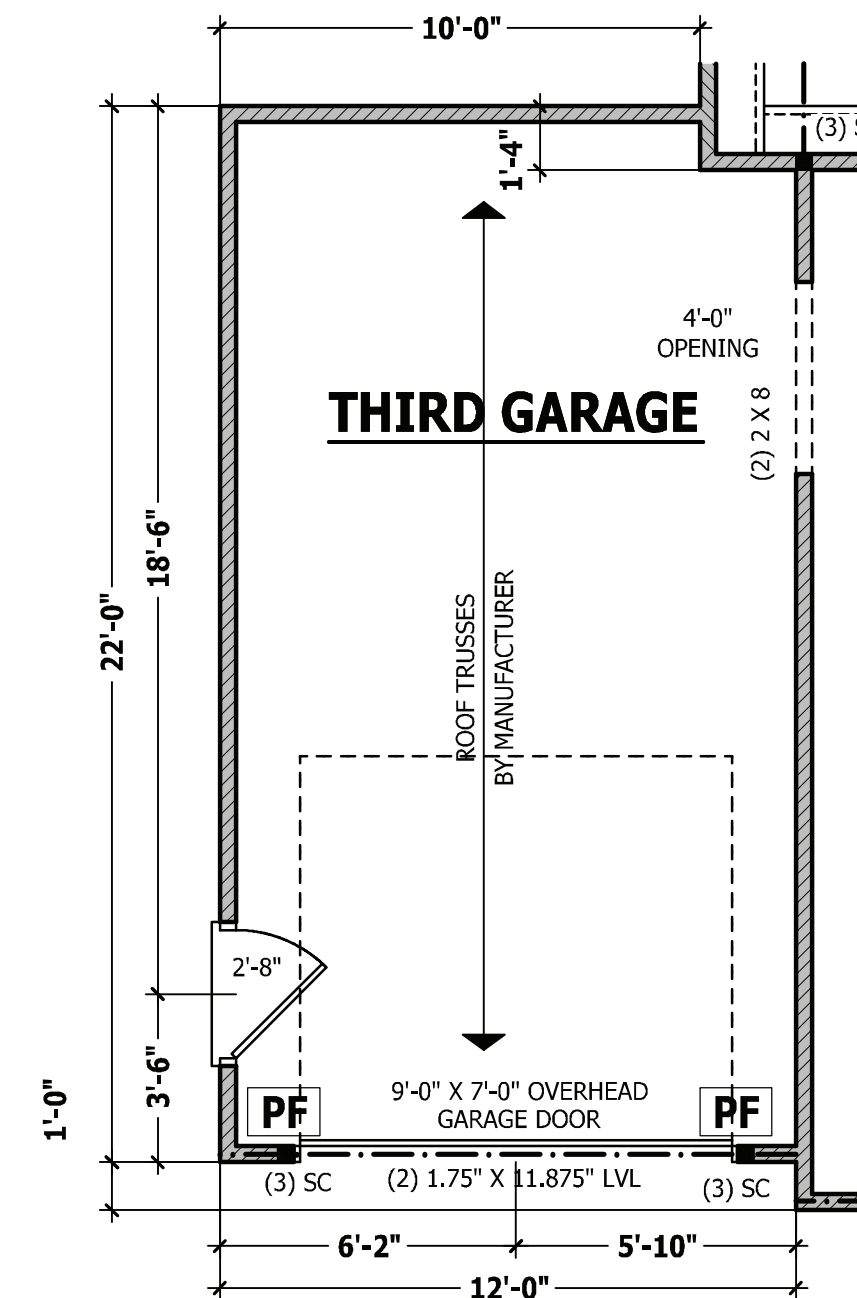
SEE BASE PLAN FOR STRUCTURAL NOTES AND DETAILS



ROOF PLAN
 SCALE 1/4" = 1'-0"



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



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

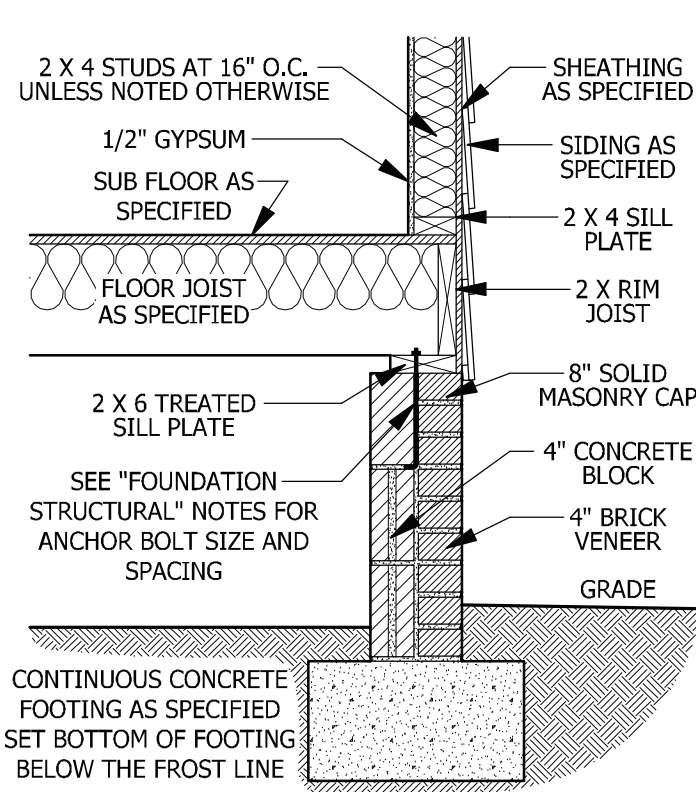
THIRD GARAGE - GABLE
Mayview

SHB
SIGNATURE
 HOME BUILDERS, INC.

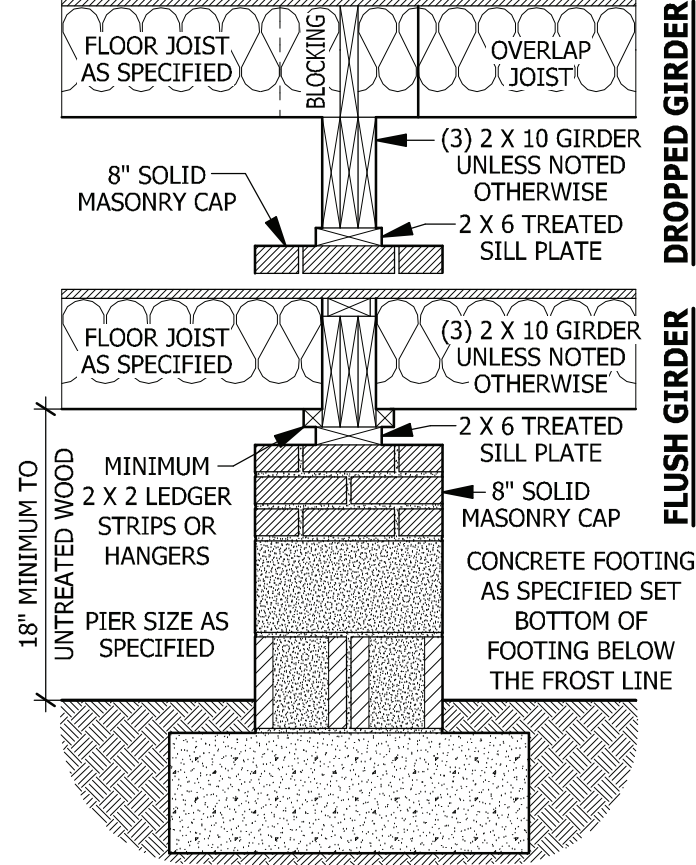
HAYNES
 HOME PLANS, INC.
 P.O. BOX 702, WAKE FOREST, NC 27788 919-495-6180 FAX 1-866-491-0396

SQUARE FOOTAGE	
HEATED	
FIRST FLOOR	1395 SQ.FT.
SECOND FLOOR	1336 SQ.FT.
TOTAL	2731 SQ.FT.
UNHEATED	
GARAGE	547 SQ.FT.
FRONT PORCH	114 SQ.FT.
SCREENED PORCH	185 SQ.FT.
DECK/PATIO	129 SQ.FT.
STORAGE	205 SQ.FT.
TOTAL	1171 SQ.FT.
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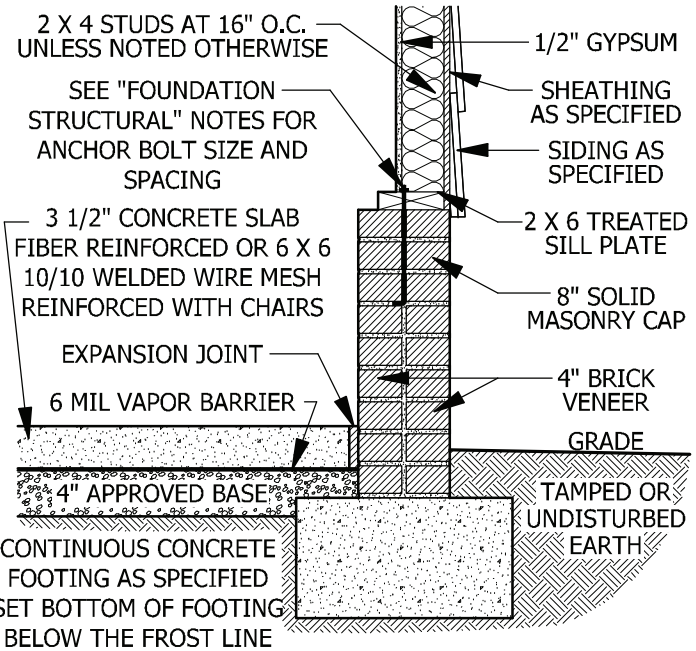
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 11/12/2019
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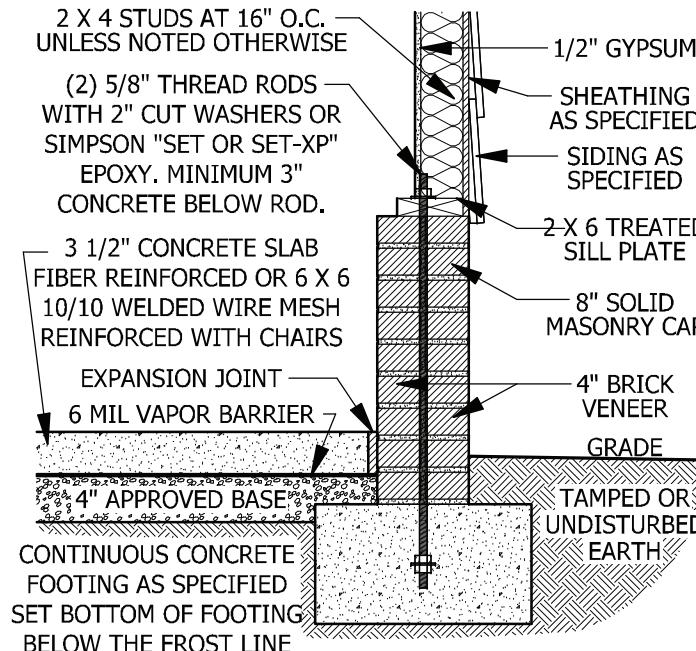
A CRAWL SPACE WALL
SCALE 3/4" = 1'-0"



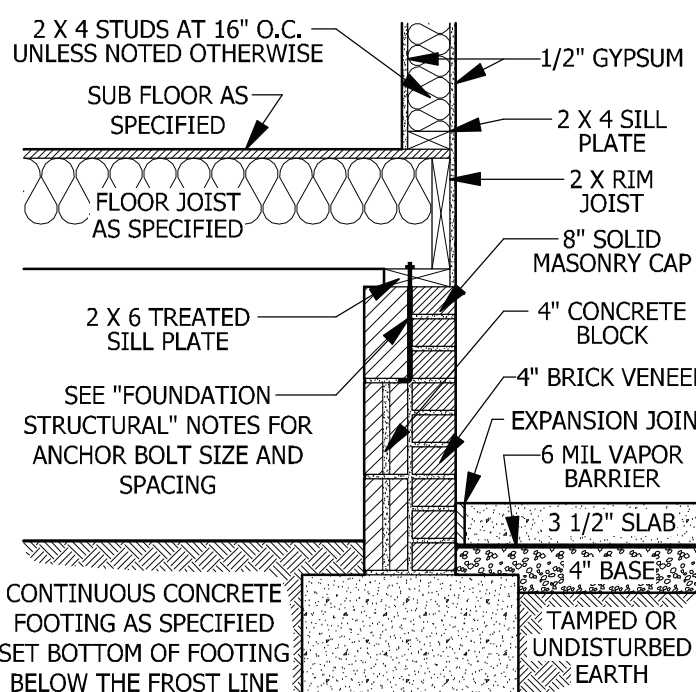
B DROPPED/ FLUSH PIER
SCALE 3/4" = 1'-0"



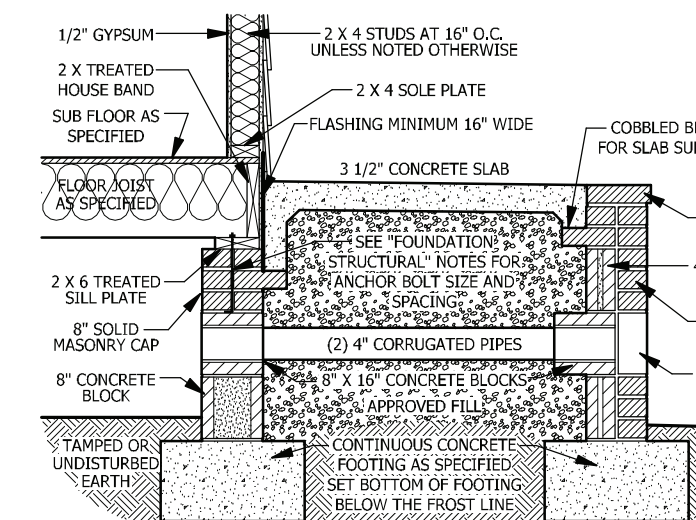
D GARAGE STEM WALL
SCALE 3/4" = 1'-0"



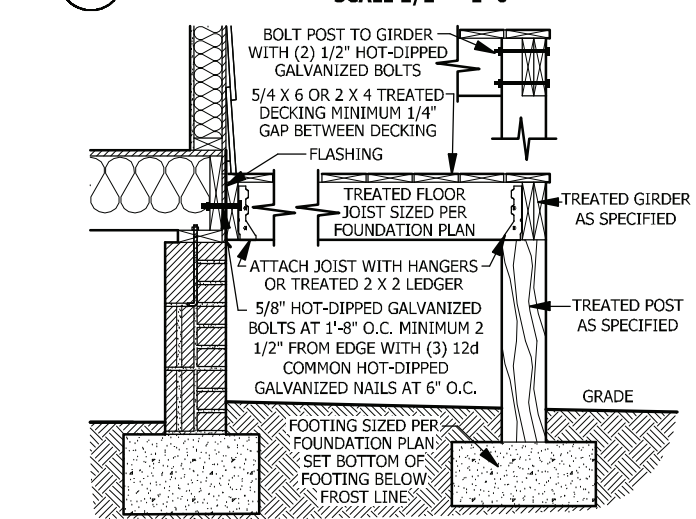
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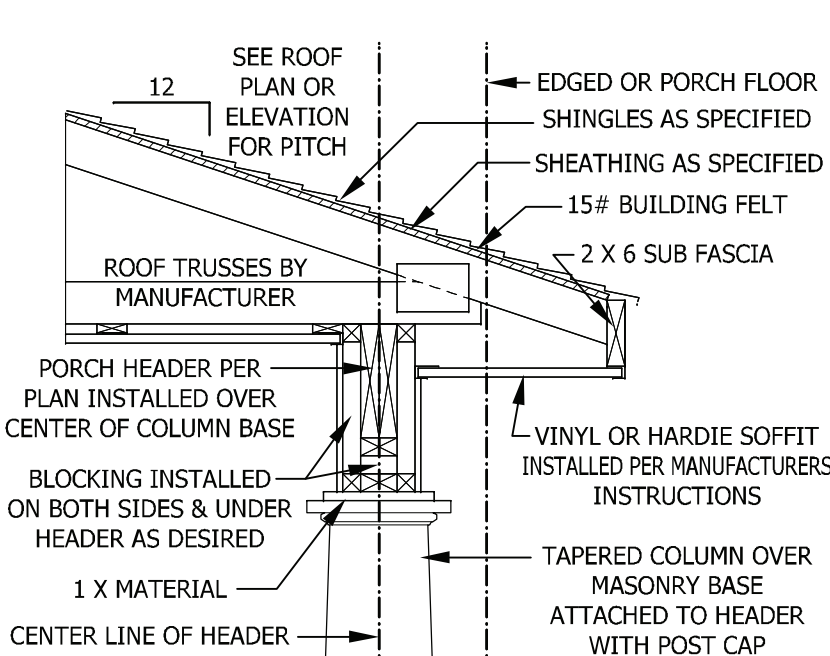
C CRAWL SPACE AT GARGE
SCALE 3/4" = 1'-0"



F FILLED PORCH SECTION WITH VENT
SCALE 1/2" = 1'-0"



G DECK ATTACHMENT
SCALE 1/2" = 1'-0"



PORCH HEADER WITH TAPERED COLUMN
SCALE 3/4" = 1'-0"

CARBON MONOXIDE ALARMS

SECTION R315
R315.1 Carbon monoxide alarms. In new construction, dwelling units shall be provided with an approved carbon monoxide alarm installed outside of each separate sleeping area in the immediate vicinity of the bedroom(s) as directed by the alarm manufacturer.
R315.2 Where required in existing dwellings, where interior alterations, repairs, fuel-fired appliance replacements, or additions requiring a permit occurs, or where one or more sleeping rooms are added or created, carbon monoxide alarms shall be provided in accordance with Section 315.1.
R315.3 Alarm requirements. The required carbon monoxide alarms shall be audible in all bedrooms over background noise levels with all intervening doors closed. Single station carbon monoxide alarms shall be listed as complying with UL 2034 and shall be installed in accordance with this code and the manufacturer's installation instructions.

STAIRWAY NOTES

R311.7
R311.7.2 Headroom. The minimum headroom in all parts of the stairway shall not be less than 6 feet 8 inches (2032 mm) measured vertically from the sloped line adjoining the tread nosing or from the floor surface of the landing or platform on that portion of the stairway.
R311.7.4 Stair treads and risers. Stair treads and risers shall meet the requirements of this section. For the purposes of this section all dimensions and dimensioned surfaces shall be exclusive of carpets, rugs or runners.
R311.7.4.1 Riser height. The maximum riser height shall be 8 1/4 inches (210 mm). The riser shall be measured vertically between leading edges of the adjacent treads.
R311.7.4.2 Tread depth. The minimum tread depth shall be 9 inches (229 mm). The tread depth shall be measured horizontally between the vertical planes of the foremost projection of adjacent treads and at a right angle to the tread's leading edge. Winder treads shall have a minimum tread depth of 9 inches (229 mm) measured as above at a point 12 inches (305 mm) from the side where the treads are narrower. Winder treads shall have a minimum tread depth of 4 inches (102 mm) at any point.
R311.7.4.3 Profile. The radius of curvature at the nosing shall be no greater than 9/16 inch (14 mm). A nosing not less than 3/4 inch (19 mm) but not more than 1 1/4 inches (32 mm) shall be provided on stairways with solid risers.
R311.7.7 Handrails. Handrails shall be provided on at least one side of each continuous run of treads or flight with four or more risers.
R311.7.7.1 Height. Handrail height, measured vertically from the sloped plane adjoining the tread nosing, or finish surface of ramp slope, shall be not less than 34 inches (864 mm) and not more than 38 inches (965 mm).
Exceptions:
 1. The use of a volute, turnout or starting easing shall be allowed over the lowest tread.
 2. When handrail fittings or bendings are used to provide continuous transition between flights, the transition from handrail to guardrail, or used at the start of a flight, the handrail height at the fittings or bendings shall be permitted to exceed the maximum height.
R311.7.7.2 Continuity. Handrails for stairways 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 of the flight. 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 inch (38 mm) between the wall and the handrails.
Exceptions:
 1. Handrails shall be permitted to be interrupted by a newel post.
 2. The use of a volute, turnout, starting easing or starting newel shall be allowed over the lowest tread.
 3. Two or more separate rails shall be considered continuous if the termination of the rails occurs within 6 inches (152 mm) of each other. If transitioning between a wall-mounted handrail and a guardrail/handrail, the wall-mounted rail must return into the wall.

DECK STAIR NOTES

SECTION AM110
AM110.1 Stairs shall be constructed per Figure AM110. Stringer spans shall be no greater than 7 foot span between supports. Spacing between stringers shall be based upon decking material used per AM107.1. Each Stringer shall have minimum 3 1/2 inches between step cut and back of stringer. If used, suspended headers shall be attached with 3/8 inch galvanized bolts with nuts and washers to securely support stringers at the top.

DECK BRACING

SECTION AM109
AM109.1 Deck bracing. Decks shall be braced to provide lateral stability. The following are acceptable means to provide lateral stability.
AM109.1.1. When the deck floor height is less than 4'-0" above finished grade per Figure AM109 and the deck is attached to the structure in accordance with Section AM104, lateral bracing is not required.
AM109.1.2. 4 x 4 wood knee braces may be provided on each column in both directions. The knee braces shall attach to each post at a point not less than 1/3 of the post length from the top of the post, and the braces shall be angled between 45 degrees and 60 degrees from the horizontal. Knee braces shall be bolted to the post and the girder/double band with one 5/8 inch hot dipped galvanized bolt with nut and washer at both ends of the brace per Figure AM109.1
AM109.1.3. For freestanding decks without knee braces or diagonal bracing, lateral stability may be provided by embedding the post in accordance with Figure AM109.2 and the following:

POST SIZE	MAX. TRIBUTARY AREA	MAX. POST HEIGHT	EMBEDMENT DEPTH	CONCRETE DIAMETER
4 X 4	48 SF	4'-0"	2'-6"	1'-0"
6 X 6	120 SF	6'-0"	3'-6"	1'-8"

AM109.1.4. 2 x 6 diagonal vertical cross bracing may be provided in two perpendicular directions for freestanding decks or parallel to the structure at the exterior column line for attached decks. The 2 x 6's shall be attached to the posts with one 5/8 inch hot dipped galvanized bolt with nut and washer at each end of each bracing member per Figure AM109.3.
AM109.1.5. For embedment of piles in Coastal Regions, see Chapter 45.

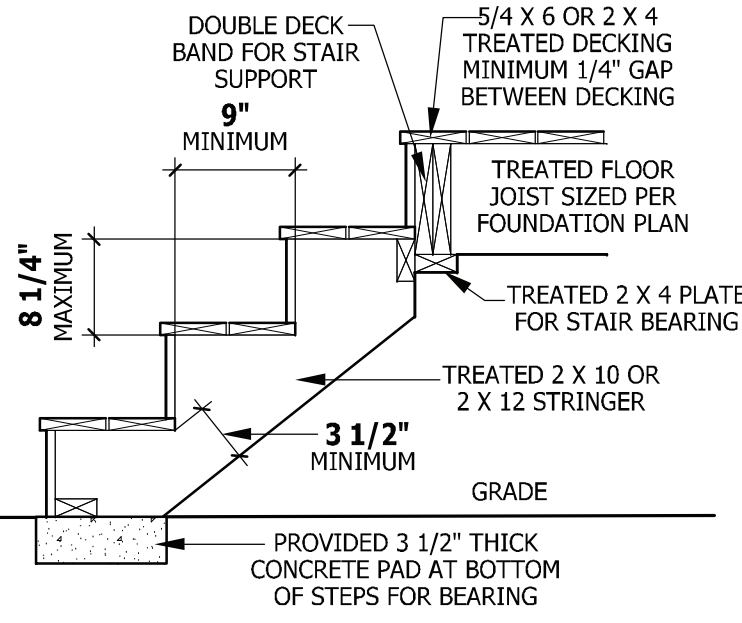
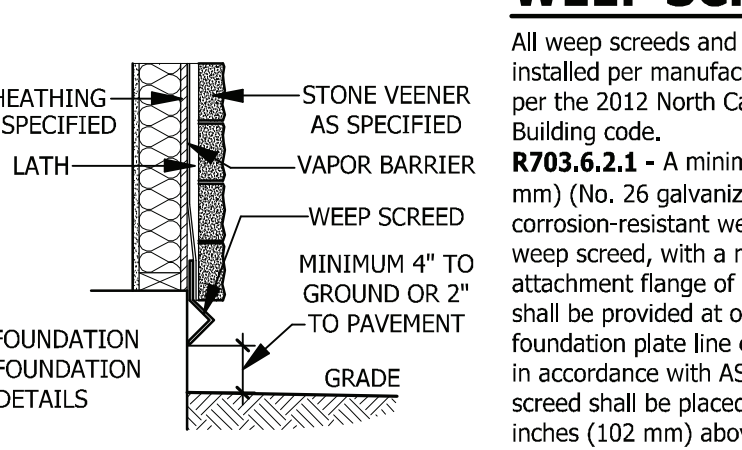


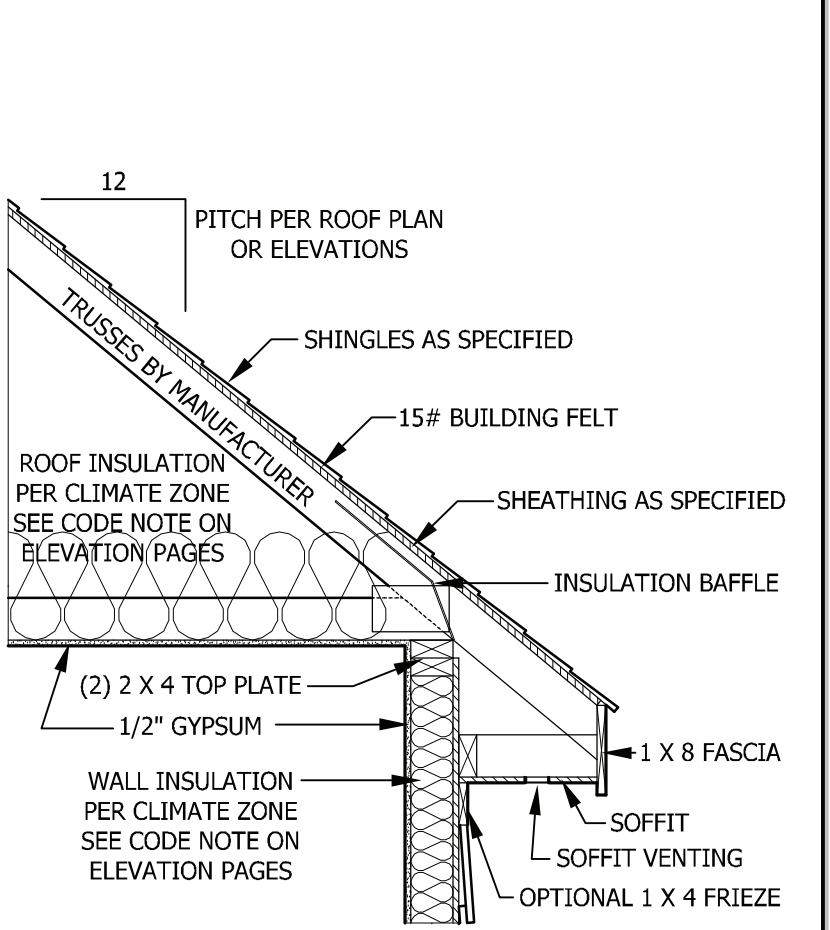
FIGURE AM110
TYPICAL DECK STAIR DETAIL
SCALE 3/4" = 1'-0"



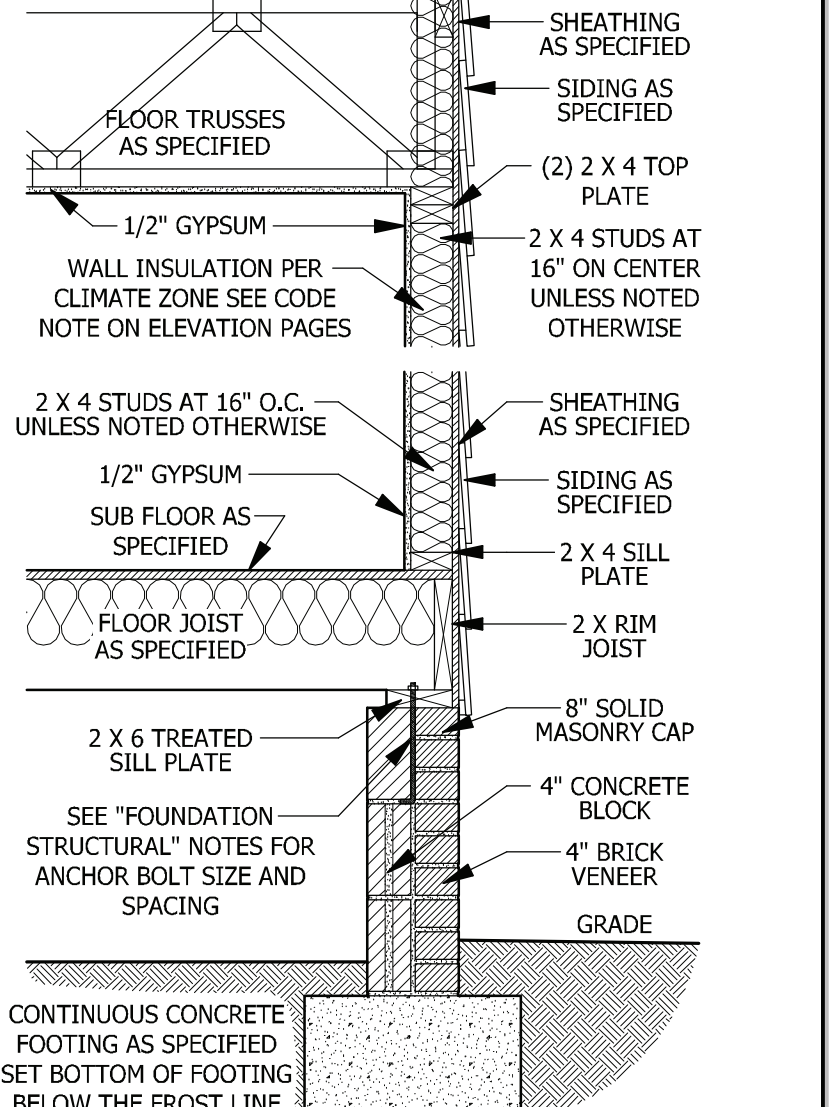
WEEP SCREED
SCALE 3/4" = 1'-0"

SMOKE ALARMS

SECTION R314
R314.1 Smoke detection and notification. All smoke alarms shall be listed in accordance with UL 217 and installed in accordance with the provisions of this code and the household fire warning equipment provisions of NFPA 72.
R314.2 Smoke detection systems. Household fire alarm systems installed in accordance with NFPA 72 that include smoke alarms, or a combination of smoke detector and audible notification device installed as required by this section for smoke alarms, shall be permitted. The household fire alarm system shall provide the same level of smoke detection and alarm as required by this section for smoke alarms. Where a household fire warning system is installed using a combination of smoke detector and audible notification device(s), it shall become a permanent fixture of the occupancy and owned by the homeowner. The system shall be monitored by an approved supervising station and be maintained in accordance with NFPA 72.
Exception: Where smoke alarms are provided meeting the requirements of Section R314.4.
R314.3 Location. Smoke alarms shall be installed in the following locations:
 1. In each sleeping room.
 2. Outside each separate sleeping area in the immediate vicinity of the bedrooms.
 3. On each additional story of the dwelling, including basements and habitable attics (finished) but not including crawl spaces, uninhabitable (unfinished) attics and uninhabitable (unfinished) attic-stories. 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.
 When more than one smoke alarm is required to be installed within an individual dwelling unit the alarm devices shall be interconnected in such a manner that the actuation of one alarm will activate all of the alarms in the individual unit.
R314.4 Power source. Smoke alarms shall receive their primary power from the building wiring when such wiring is served from a commercial source, and when primary power is interrupted, shall receive power from a battery. Wiring shall be permanent and without a disconnecting switch other than those required for overcurrent protection. Smoke alarms shall be interconnected.



TYPICAL WALL DETAIL
SCALE 3/4" = 1'-0"



TYPICAL STAIR DETAIL
SCALE 1/4" = 1'-0"

PURCHASER MUST VERIFY ALL DIMENSIONS AND CONDITIONS BEFORE CONSTRUCTION BEGINS. HAYNES HOME PLANS, INC. ASSUMES NO LIABILITY FOR CONTRACTORS PRACTICES AND PROCEDURES. CODES AND CONDITIONS MAY VARY WITH LOCATION. A LOCAL DESIGNER, ARCHITECT OR ENGINEER SHOULD BE CONSULTED BEFORE CONSTRUCTION. THESE DRAWING ARE INSTRUMENTS OF SERVICE AND AS SUCH SHALL REMAIN PROPERTY OF THE DESIGNER.

TYPICAL DETAILS
Mayview

SHB SIGNATURE HOME BUILDERS, INC.

HAYNES HOME PLANS, INC.
P.O. BOX 702, WAIVE FOREST, NC 27588 919-485-6180 FAX +866-491-0396

SQUARE FOOTAGE HEATED

FIRST FLOOR	1395 SQ.FT.
SECOND FLOOR	1336 SQ.FT.
TOTAL	2731 SQ.FT.

UNHEATED

GARAGE	547 SQ.FT.
FRONT PORCH	114 SQ.FT.
SCREENED PORCH	185 SQ.FT.
DECK/PATIO	120 SQ.FT.
STORAGE	205 SQ.FT.
TOTAL	1171 SQ.FT.

UNHEATED OPTIONAL

THIRD GARAGE	261 SQ.FT.
TOTAL	261 SQ.FT.



ROOF & FLOOR TRUSSES & BEAMS

Reilly Road Industrial Park
Fayetteville, N.C. 28309
Phone: (910) 864-8787
Fax: (910) 864-4444

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

Signature _____
Sales Area

Beam Schedule				
PlotID	Length	Product	Plies	Net Qty
BPB1	15' 0"	1-3/4"x 9-1/4" LVL Kerto-S	2	2
BPB2	13' 0"	1-3/4"x 9-1/4" LVL Kerto-S	2	4
BM5	10' 0"	1-3/4"x 9-1/4" LVL Kerto-S	2	2
H6	7' 0"	1-3/4"x 9-1/4" LVL Kerto-S	2	2
GDH-9	12' 0"	1-3/4"x 11-7/8" LVL Kerto-S	2	2
GDH	24' 0"	1-3/4"x 14" LVL Kerto-S	2	2
BM1	19' 0"	1-3/4"x 16" LVL Kerto-S	2	2
BM2	19' 0"	1-3/4"x 16" LVL Kerto-S	2	2
BM6	16' 0"	1-3/4"x 16" LVL Kerto-S	3	3
BM4	9' 0"	1-3/4"x 16" LVL Kerto-S	2	2
BM3	5' 0"	1-3/4"x 16" LVL Kerto-S	2	2

All Truss Reactions are Less than 3,000 lbs. Unless Noted Otherwise.

○ -- Denotes Reaction Greater than 3,000 lbs. Reaction / # of Studs

Connector Information				Nail Information	
Sym	Product	Manuf Qty	Supported Member	Header	Truss
●	HUS410	USP	22	Varies	16d/3-12"
○	MSH422	USP	1	Varies	10d/3" 10d/3"

WALL SCHEDULE		
	1st Floor Brg. Wall	
	2nd Floor Brg. Wall	
	Non-Bearing Walls	

▲ = Indicates Left End of Truss (Reference Engineered Truss Drawing)
Do Not Erect Trusses Backwards

Plumbing Drop Notes
1. Plumbing drop locations shown are NOT exact.
2. Contractor to verify ALL plumbing drop locations prior to setting Floor Trusses.
3. Adjust spacing as needed not to exceed 24"oc.

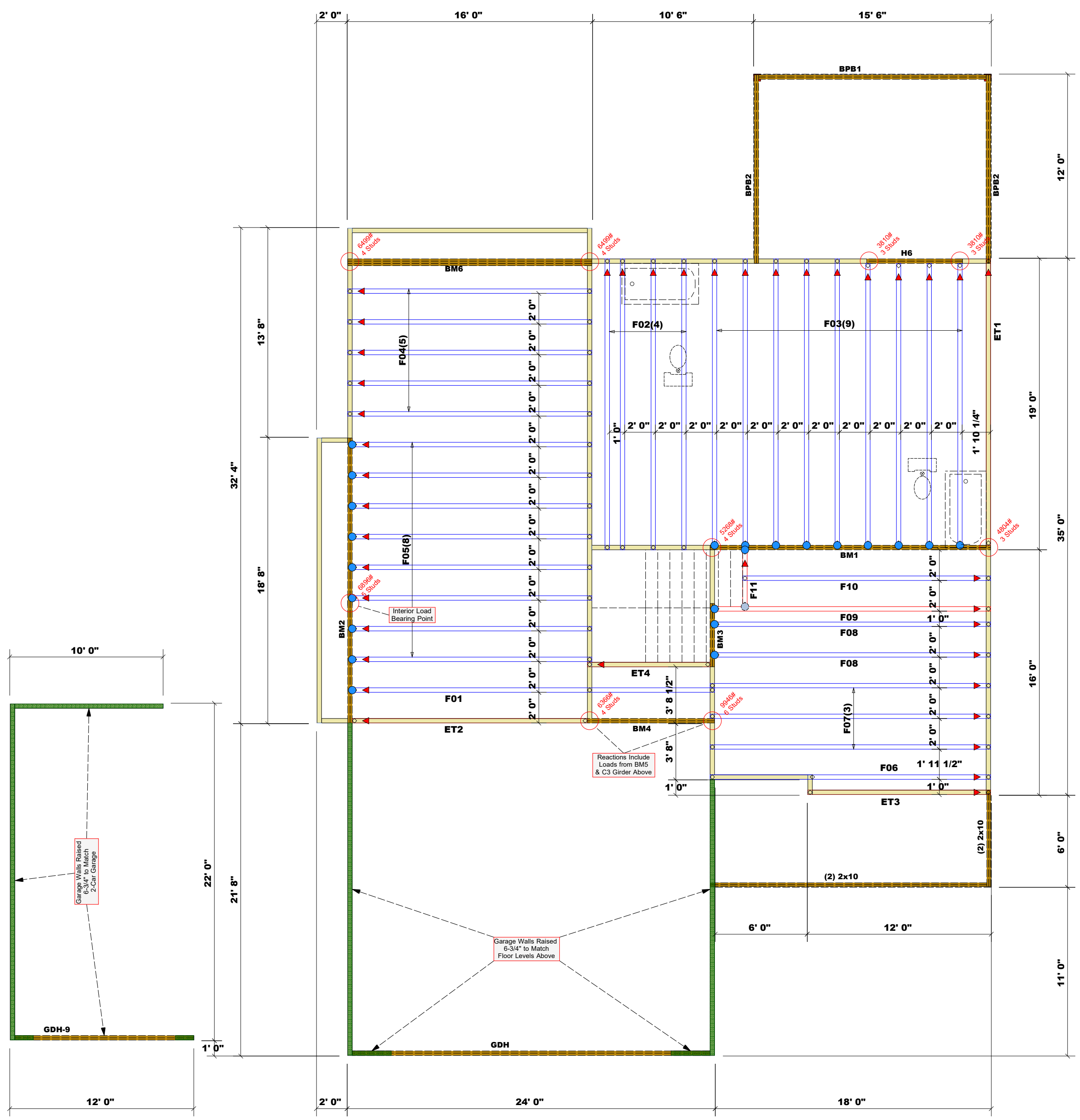
Dimension Notes
1. All exterior wall to wall dimensions are to face of sheathing unless noted otherwise.
2. All interior wall dimensions are to face of stud unless noted otherwise.
3. All exterior wall to truss dimensions are to face of stud unless noted otherwise.

LOAD CHART FOR JACK STUDS

(BASED ON TABLES R502.5(1) & (b))
NUMBER OF JACK STUDS REQUIRED @ EA END OF HEADER/GIRDER

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

BUILDER	JOB NAME	PLAN	SEAL DATE	QUOTE #	JOB #	COUNTY	ADDRESS	MODEL	DATE REV.	DRAWN BY	SALESMAN
Signature Home Builders	Lot 5 Pope Road	Mayview w/ 3rd Car Gar. Option	11/12/19	NA	J0221-0979	Harnett County	Lot 5 Pope Road / Dunn, NC	Floor	2/18/21	Anthony Williams	Anthony Williams



Truss Placement Plan
SCALE: 3/16" = 1'-0"

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



ROOF & FLOOR TRUSSES & BEAMS

Reilly Road Industrial Park
Fayetteville, N.C. 28309
Phone: (910) 864-8787
Fax: (910) 864-4444

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

Signature _____
Sales Area

Beam Schedule				
PlotID	Length	Product	Piles	Net Qty
BPB1	15' 0"	1-3/4"x 9-1/4" LVL Kerto-S	2	2
BPB2	13' 0"	1-3/4"x 9-1/4" LVL Kerto-S	2	4
BM5	10' 0"	1-3/4"x 9-1/4" LVL Kerto-S	2	2
H6	7' 0"	1-3/4"x 9-1/4" LVL Kerto-S	2	2
GDH-9	12' 0"	1-3/4"x 11-7/8" LVL Kerto-S	2	2
GDH	24' 0"	1-3/4"x 14" LVL Kerto-S	2	2
BM1	19' 0"	1-3/4"x 16" LVL Kerto-S	2	2
BM2	19' 0"	1-3/4"x 16" LVL Kerto-S	2	2
BM6	16' 0"	1-3/4"x 16" LVL Kerto-S	3	3
BM4	9' 0"	1-3/4"x 16" LVL Kerto-S	2	2
BM3	5' 0"	1-3/4"x 16" LVL Kerto-S	2	2

All Truss Reactions are Less than 3,000 lbs. Unless Noted Otherwise.
-- Denotes Reaction Greater than 3,000 lbs. Reaction / # of Studs

Connector Information				Nail Information	
Sym	Product	Manuf	Qty	Header	Truss
■	HUS26	USP	13	Varies	16d3-12"

WALL SCHEDULE		
—	1st Floor Brg. Wall	
—	2nd Floor Brg. Wall	
- - -	Non-Bearing Walls	

▲ Indicates Left End of Truss (Reference Engineered Truss Drawing)
Do Not Erect Trusses Backwards

- Plumbing Drop Notes
1. Plumbing drop locations shown are NOT exact.
 2. Contractor to verify ALL plumbing drop locations prior to setting Floor Trusses.
 3. Adjust spacing as needed not to exceed 24"oc.

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

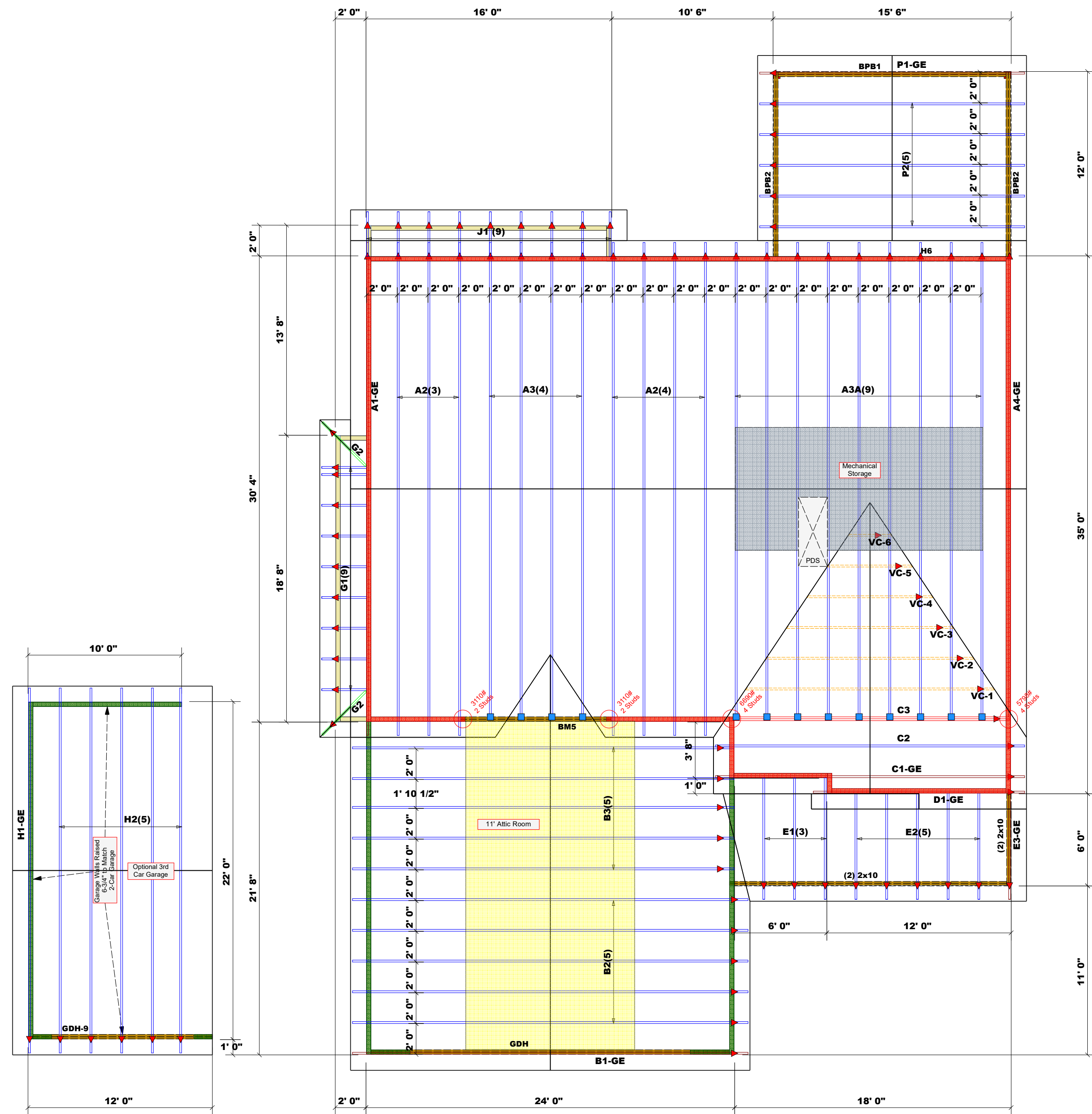
LOAD CHART FOR JACK STUDS

(BASED ON TABLES R502.5(1) & (b))
NUMBER OF JACK STUDS REQUIRED @ EA END OF HEADER/GIRDER

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

BUILDER	JOB NAME	PLAN	SEAL DATE	QUOTE #	JOB #	COUNTY	ADDRESS	MODEL	DATE REV.	DRAWN BY	SALESMAN
Signature Home Builders	Lot 5 Pope Road	Mayview w/ 3rd Car Gar. Option	11/12/19	NA	J0221-0977	Harnett County	Lot 5 Pope Road / Dunn, NC	Roof	2/18/21	Anthony Williams	Anthony Williams

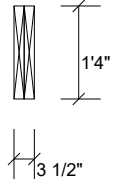
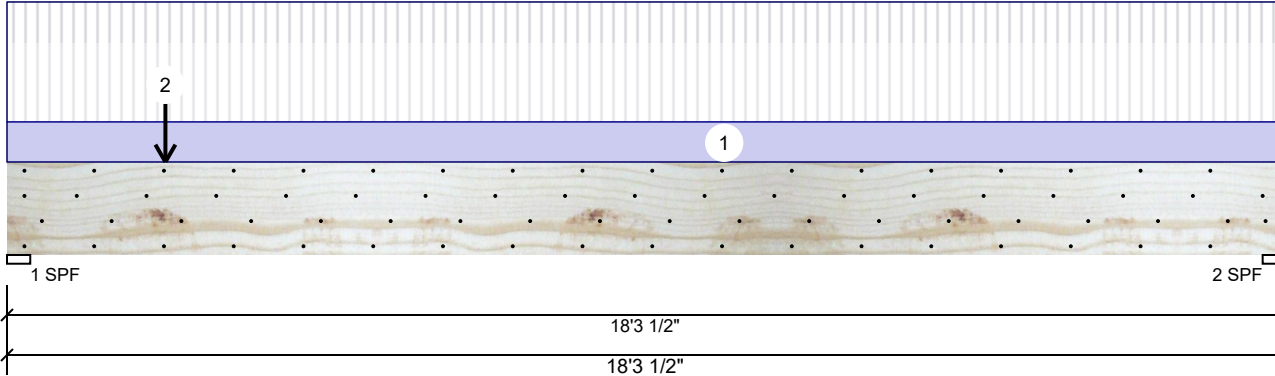
THIS IS A TRUSS PLACEMENT DIAGRAM ONLY. These trusses are designed as individual building components to be incorporated into the building design at the specification of the building designer. See individual design sheets for each truss design identified on the placement drawing. The building designer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



Truss Placement Plan
SCALE: 3/16" = 1'-0"

BM1 Kerto-S LVL 1.750" X 16.000" 2-Ply - PASSED

Level: Level



Member Information

Type:	Girder
Plies:	2
Moisture Condition:	Dry
Deflection LL:	480
Deflection TL:	360
Importance:	Normal
Temperature:	Temp <= 100°F

Application:	Floor
Design Method:	ASD
Building Code:	IBC 2012
Load Sharing:	No
Deck:	Not Checked

Reactions UNPATTERNED lb (Uplift)

Brg	Live	Dead	Snow	Wind	Const
1	3863	1405	0	0	0
2	3516	1289	0	0	0

Bearings

Bearing	Length	Cap.	React D/L	lb	Total	Ld. Case	Ld. Comb.
1 - SPF	4.000"	89%	1405 / 3863	5268	L	D+L	
2 - SPF	3.500"	92%	1289 / 3516	4804	L	D+L	

Analysis Results

Analysis	Actual	Location	Allowed	Capacity	Comb.	Case
Moment	21179 ft-lb	9' 1/2"	34565 ft-lb	0.613 (61%)	D+L	L
Unbraced	21179 ft-lb	9' 1/2"	21280 ft-lb	0.995 (100%)	D+L	L
Shear	5116 lb	1'7 1/8"	11947 lb	0.428 (43%)	D+L	L
LL Defl inch	0.404 (L/529)	9'1 7/16"	0.445 (L/480)	0.910 (91%)	L	L
TL Defl inch	0.552 (L/387)	9'1 7/16"	0.594 (L/360)	0.930 (93%)	D+L	L

Design Notes

- 1 Fasten all plies using 4 rows of 10d Box nails (.128x3") at 12" o.c. Maximum end distance not to exceed 6".
- 2 Refer to last page of calculations for fasteners required for specified loads.
- 3 Girders are designed to be supported on the bottom edge only.
- 4 Top must be laterally braced at a maximum of 5'3 3/4" o.c.
- 5 Bottom braced at bearings.
- 6 Lateral slenderness ratio based on single ply width.

ID	Load Type	Location	Trib Width	Side	Dead 0.9	Live 1	Snow 1.15	Wind 1.6	Const. 1.25	Comments
1	Uniform			Far Face	127 PLF	380 PLF	0 PLF	0 PLF	0 PLF	F03
2	Point	2-3-4		Near Face	143 lb	428 lb	0 lb	0 lb	0 lb	F11
	Self Weight				12 PLF					

Notes

Calculated Structured Designs is responsible only of the structural adequacy of this component based on the design criteria and loadings shown. It is the responsibility of the customer and/or the contractor to ensure the component suitability of the intended application, and to verify the dimensions and loads.

Lumber

1. Dry service conditions, unless noted otherwise
2. LVL not to be treated with fire retardant or corrosive

chemicals

Handling & Installation

1. LVL beams must not be cut or drilled
2. Refer to manufacturer's product information regarding installation requirements, multi-ply fastening details, beam strength values, and code approvals
3. Damaged Beams must not be used
4. Design assumes top edge is laterally restrained
5. Provide lateral support at bearing points to avoid lateral displacement and rotation

6. For flat roofs provide proper drainage to prevent ponding

This design is valid until 2/26/2023

Manufacturer Info

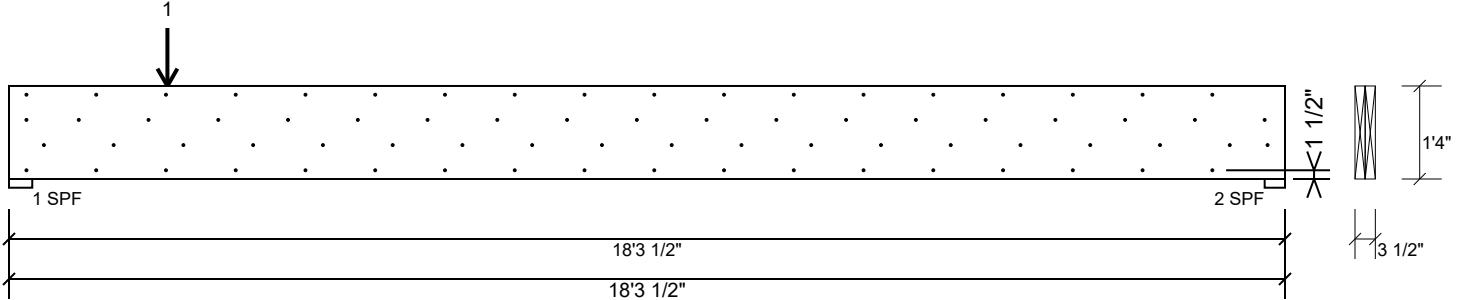
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BM1 Kerto-S LVL 1.750" X 16.000" 2-Ply - PASSED

Level: Level



Multi-Ply Analysis

Fasten all plies using 4 rows of 10d Box nails (.128x3") at 12" o.c.. Maximum end distance not to exceed 6"

Capacity	77.4 %
Load	253.5 PLF
Yield Limit per Foot	327.4 PLF
Yield Limit per Fastener	81.9 lb.
Yield Mode	IV
Edge Distance	1 1/2"
Min. End Distance	3"
Load Combination	D+L
Duration Factor	1.00

Notes

Calculated Structured Designs is responsible only of the structural adequacy of this component based on the design criteria and loadings shown. It is the responsibility of the customer and/or the contractor to ensure the component suitability of the intended application, and to verify the dimensions and loads.

Lumber

1. Dry service conditions, unless noted otherwise
2. LVL not to be treated with fire retardant or corrosive

chemicals

Handling & Installation

1. LVL beams must not be cut or drilled
2. Refer to manufacturer's product information regarding installation requirements, multi-ply fastening details, beam strength values, and code approvals
3. Damaged Beams must not be used
4. Design assumes top edge is laterally restrained
5. Provide lateral support at bearing points to avoid lateral displacement and rotation

6. For flat roofs provide proper drainage to prevent ponding

This design is valid until 2/26/2023

Manufacturer Info

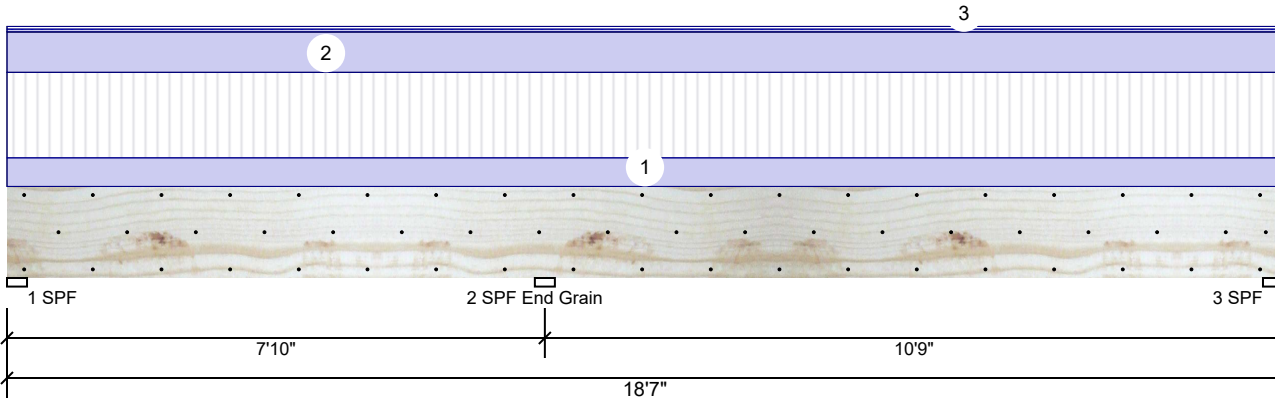
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BM2 Kerto-S LVL 1.750" X 16.000" 2-Ply - PASSED

Level: Level



Member Information

Type:	Girder	Application:	Floor
Plies:	2	Design Method:	ASD
Moisture Condition:	Dry	Building Code:	IBC 2012
Deflection LL:	480	Load Sharing:	No
Deflection TL:	360	Deck:	Not Checked
Importance:	Normal		
Temperature:	Temp <= 100°F		

Reactions UNPATTERNED lb (Uplift)

Brg	Live	Dead	Snow	Wind	Const
1	859	755	27	0	0
2	3595	3158	113	0	0
3	1437	1262	45	0	0

Bearings

Bearing	Length	Cap. React	D/L lb	Total	Ld. Case	Ld. Comb.
1 - SPF	3.500"	36%	716 / 1150	1865	L_	D+L
2 - SPF	3.500"	65%	3225 / 3671	6896	LL	D+L
End Grain						
3 - SPF	3.500"	52%	1234 / 1496	2730	_L	D+L

Analysis Results

Analysis	Actual	Location	Allowed	Capacity	Comb.	Case
Neg Moment	-6602 ft-lb	7'10"	34565 ft-lb	0.191 (19%)	D+L	LL
Unbraced	-6602 ft-lb	7'10"	11591 ft-lb	0.570 (57%)	D+L	LL
Pos Moment	5677 ft-lb	14'	34565 ft-lb	0.164 (16%)	D+L	_L
Unbraced	5677 ft-lb	14'	11591 ft-lb	0.490 (49%)	D+L	_L
Shear	2968 lb	9'2"	11947 lb	0.248 (25%)	D+L	LL
LL Defl inch	0.034 (L/3685)	13'4 1/8"	0.263 (L/480)	0.130 (13%)	L	_L
TL Defl inch	0.061 (L/2084)	13'4 13/16"	0.351 (L/360)	0.170 (17%)	D+L	_L

Design Notes

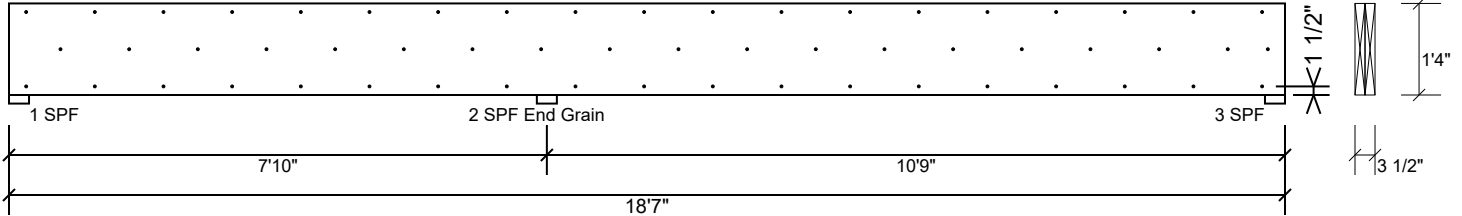
- 1 Fasten all plies using 3 rows of 10d Box nails (.128x3") at 12" o.c. Maximum end distance not to exceed 6".
- 2 Refer to last page of calculations for fasteners required for specified loads.
- 3 Girders are designed to be supported on the bottom edge only.
- 4 Top loads must be supported equally by all plies.
- 5 Top braced at bearings.
- 6 Bottom braced at bearings.
- 7 Lateral slenderness ratio based on single ply width.

ID	Load Type	Location	Trib Width	Side	Dead 0.9	Live 1	Snow 1.15	Wind 1.6	Const. 1.25	Comments
1	Uniform			Top	106 PLF	317 PLF	0 PLF	0 PLF	0 PLF	F05
2	Uniform			Top	150 PLF	0 PLF	0 PLF	0 PLF	0 PLF	WALL
3	Uniform			Top	10 PLF	0 PLF	10 PLF	0 PLF	0 PLF	G1
	Self Weight				12 PLF					

<p>Notes</p> <p>Calculated Structured Designs is responsible only of the structural adequacy of this component based on the design criteria and loadings shown. It is the responsibility of the customer and/or the contractor to ensure the component suitability of the intended application, and to verify the dimensions and loads.</p> <p>Lumber</p> <ol style="list-style-type: none"> 1. Dry service conditions, unless noted otherwise 2. LVL not to be treated with fire retardant or corrosive chemicals 	<p>Handling & Installation</p> <ol style="list-style-type: none"> 1. LVL beams must not be cut or drilled 2. Refer to manufacturer's product information regarding installation requirements, multi-ply fastening details, beam strength values, and code approvals 3. Damaged Beams must not be used 4. Design assumes top edge is laterally restrained 5. Provide lateral support at bearing points to avoid lateral displacement and rotation 	<p>6. For flat roofs provide proper drainage to prevent ponding</p>	<p>Manufacturer Info</p> <p>Metsä Wood 301 Merritt 7 Building, 2nd Floor Norwalk, CT 06851 (800) 622-5850 www.metsawood.com/us ICC-ES: ESR-3633</p>	<p>Comtech, Inc. 1001 S. Reilly Road, Suite #639 Fayetteville, NC USA 28314 910-864-TRUS</p>
			<p>This design is valid until 2/26/2023</p>	

BM2 Kerto-S LVL 1.750" X 16.000" 2-Ply - PASSED

Level: Level



Multi-Ply Analysis

Fasten all plies using 3 rows of 10d Box nails (.128x3") at 12" o.c.. Maximum end distance not to exceed 6"

Capacity	0.0 %
Load	0.0 PLF
Yield Limit per Foot	245.6 PLF
Yield Limit per Fastener	81.9 lb.
Yield Mode	IV
Edge Distance	1 1/2"
Min. End Distance	3"
Load Combination	
Duration Factor	1.00

Notes

Calculated Structured Designs is responsible only of the structural adequacy of this component based on the design criteria and loadings shown. It is the responsibility of the customer and/or the contractor to ensure the component suitability of the intended application, and to verify the dimensions and loads.

Lumber

1. Dry service conditions, unless noted otherwise
2. LVL not to be treated with fire retardant or corrosive

chemicals

Handling & Installation

1. LVL beams must not be cut or drilled
2. Refer to manufacturer's product information regarding installation requirements, multi-ply fastening details, beam strength values, and code approvals
3. Damaged Beams must not be used
4. Design assumes top edge is laterally restrained
5. Provide lateral support at bearing points to avoid lateral displacement and rotation

6. For flat roofs provide proper drainage to prevent ponding

This design is valid until 2/26/2023

Manufacturer Info

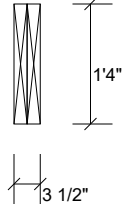
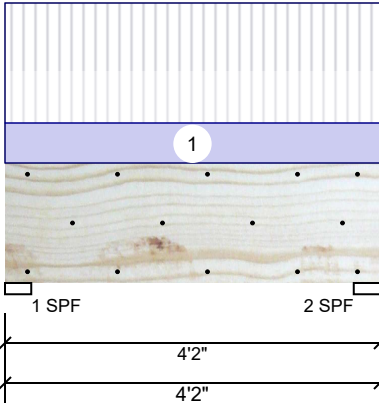
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BM3 Kerto-S LVL 1.750" X 16.000" 2-Ply - PASSED

Level: Level



Member Information

Type:	Girder
Plies:	2
Moisture Condition:	Dry
Deflection LL:	480
Deflection TL:	360
Importance:	Normal
Temperature:	Temp <= 100°F

Application:	Floor
Design Method:	ASD
Building Code:	IBC 2012
Load Sharing:	No
Deck:	Not Checked

Reactions UNPATTERNED lb (Uplift)

Brg	Live	Dead	Snow	Wind	Const
1	763	280	0	0	0
2	763	280	0	0	0

Bearings

Bearing	Length	Cap.	React D/L	Ib	Total	Ld. Case	Ld. Comb.
1 - SPF	3.500"	20%	280 / 763	1043	L	D+L	
2 - SPF	3.500"	20%	280 / 763	1043	L	D+L	

Analysis Results

Analysis	Actual	Location	Allowed	Capacity	Comb.	Case
Moment	870 ft-lb	2'1"	34565 ft-lb	0.025 (3%)	D+L	L
Unbraced	870 ft-lb	2'1"	27449 ft-lb	0.032 (3%)	D+L	L
Shear	917 lb	2'7 3/8"	11947 lb	0.077 (8%)	D+L	L
LL Defl inch	0.002 (L/22654)	2'1 1/16"	0.093 (L/480)	0.020 (2%)	L	L
TL Defl inch	0.003 (L/16568)	2'1 1/16"	0.124 (L/360)	0.020 (2%)	D+L	L

Design Notes

- 1 Fasten all plies using 3 rows of 10d Box nails (.128x3") at 12" o.c. Maximum end distance not to exceed 6".
- 2 Refer to last page of calculations for fasteners required for specified loads.
- 3 Girders are designed to be supported on the bottom edge only.
- 4 Top braced at bearings.
- 5 Bottom braced at bearings.
- 6 Lateral slenderness ratio based on single ply width.

ID	Load Type	Location	Trib Width	Side	Dead 0.9	Live 1	Snow 1.15	Wind 1.6	Const. 1.25	Comments
1	Uniform			Near Face	122 PLF	366 PLF	0 PLF	0 PLF	0 PLF	F08
	Self Weight				12 PLF					

Notes

Calculated Structured Designs is responsible only of the structural adequacy of this component based on the design criteria and loadings shown. It is the responsibility of the customer and/or the contractor to ensure the component suitability of the intended application, and to verify the dimensions and loads.

Lumber

1. Dry service conditions, unless noted otherwise
2. LVL not to be treated with fire retardant or corrosive chemicals

Handling & Installation

1. LVL beams must not be cut or drilled
2. Refer to manufacturer's product information regarding installation requirements, multi-ply fastening details, beam strength values, and code approvals
3. Damaged Beams must not be used
4. Design assumes top edge is laterally restrained
5. Provide lateral support at bearing points to avoid lateral displacement and rotation

6. For flat roofs provide proper drainage to prevent ponding

This design is valid until 2/26/2023

Manufacturer Info

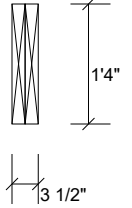
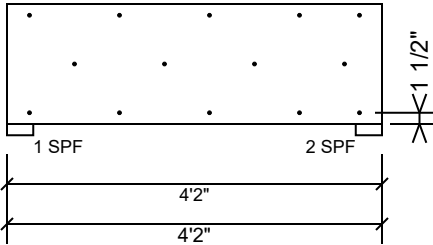
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BM3 Kerto-S LVL 1.750" X 16.000" 2-Ply - PASSED

Level: Level



Multi-Ply Analysis

Fasten all plies using 3 rows of 10d Box nails (.128x3") at 12" o.c.. Maximum end distance not to exceed 6"

Capacity	99.4 %
Load	244.0 PLF
Yield Limit per Foot	245.6 PLF
Yield Limit per Fastener	81.9 lb.
Yield Mode	IV
Edge Distance	1 1/2"
Min. End Distance	3"
Load Combination	D+L
Duration Factor	1.00

Notes

Calculated Structured Designs is responsible only of the structural adequacy of this component based on the design criteria and loadings shown. It is the responsibility of the customer and/or the contractor to ensure the component suitability of the intended application, and to verify the dimensions and loads.

Lumber

1. Dry service conditions, unless noted otherwise
2. LVL not to be treated with fire retardant or corrosive chemicals

Handling & Installation

1. LVL beams must not be cut or drilled
2. Refer to manufacturer's product information regarding installation requirements, multi-ply fastening details, beam strength values, and code approvals
3. Damaged Beams must not be used
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6. For flat roofs provide proper drainage to prevent ponding

This design is valid until 2/26/2023

Manufacturer Info

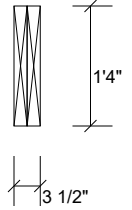
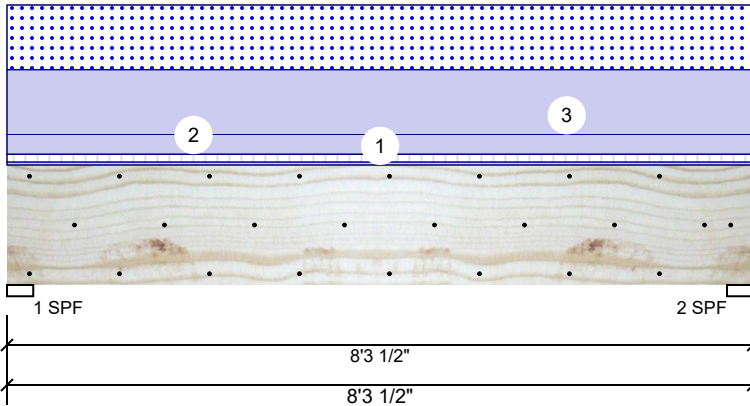
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BM4 Kerto-S LVL 1.750" X 16.000" 2-Ply - PASSED

Level: Level



Member Information

Type:	Girder
Plies:	2
Moisture Condition:	Dry
Deflection LL:	480
Deflection TL:	360
Importance:	Normal
Temperature:	Temp <= 100°F

Application:	Floor
Design Method:	ASD
Building Code:	IBC 2012
Load Sharing:	No
Deck:	Not Checked

Reactions UNPATTERNED lb (Uplift)

Brg	Live	Dead	Snow	Wind	Const
1	166	1892	1364	0	0
2	166	1892	1364	0	0

Bearings

Bearing	Length	Cap. React D/L lb	Total Ld. Case	Ld. Comb.
1 - SPF	3.500"	63% 1892 / 1364	3256 L	D+S
2 - SPF	3.500"	63% 1892 / 1364	3256 L	D+S

Analysis Results

Analysis	Actual	Location	Allowed	Capacity	Comb.	Case
Moment	6057 ft-lb	4'1 3/4"	39750 ft-lb	0.152 (15%)	D+S	L
Unbraced	6057 ft-lb	4'1 3/4"	15085 ft-lb	0.401 (40%)	D+S	L
Shear	2037 lb	1'6 5/8"	13739 lb	0.148 (15%)	D+S	L
LL Defl inch	0.017 (L/5541)	4'1 13/16"	0.196 (L/480)	0.090 (9%)	S	L
TL Defl inch	0.041 (L/2321)	4'1 13/16"	0.262 (L/360)	0.160 (16%)	D+S	L

Design Notes

- 1 Fasten all plies using 3 rows of 10d Box nails (.128x3") at 12" o.c. Maximum end distance not to exceed 6".
- 2 Refer to last page of calculations for fasteners required for specified loads.
- 3 Girders are designed to be supported on the bottom edge only.
- 4 Top loads must be supported equally by all plies.
- 5 Top braced at bearings.
- 6 Bottom braced at bearings.
- 7 Lateral slenderness ratio based on single ply width.

ID	Load Type	Location	Trib Width	Side	Dead 0.9	Live 1	Snow 1.15	Wind 1.6	Const. 1.25	Comments
1	Uniform			Top	15 PLF	40 PLF	0 PLF	0 PLF	0 PLF	FLOOR
2	Uniform			Top	100 PLF	0 PLF	0 PLF	0 PLF	0 PLF	WALL
3	Uniform			Top	329 PLF	0 PLF	329 PLF	0 PLF	0 PLF	A2
	Self Weight				12 PLF					

Notes

Calculated Structured Designs is responsible only of the structural adequacy of this component based on the design criteria and loadings shown. It is the responsibility of the customer and/or the contractor to ensure the component suitability of the intended application, and to verify the dimensions and loads.

Lumber

1. Dry service conditions, unless noted otherwise
2. LVL not to be treated with fire retardant or corrosive

chemicals

Handling & Installation

1. LVL beams must not be cut or drilled
2. Refer to manufacturer's product information regarding installation requirements, multi-ply fastening details, beam strength values, and code approvals
3. Damaged Beams must not be used
4. Design assumes top edge is laterally restrained
5. Provide lateral support at bearing points to avoid lateral displacement and rotation

6. For flat roofs provide proper drainage to prevent ponding

Manufacturer Info

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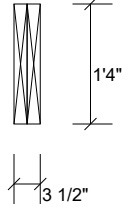
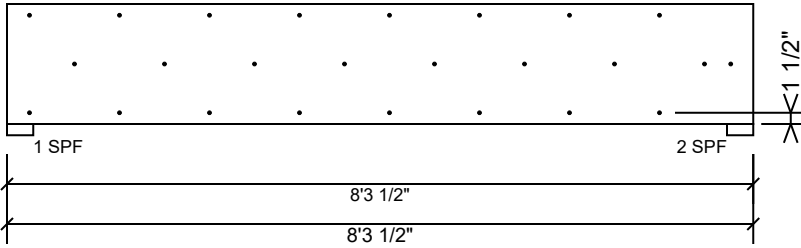
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This design is valid until 2/26/2023

BM4 Kerto-S LVL 1.750" X 16.000" 2-Ply - PASSED

Level: Level



Multi-Ply Analysis

Fasten all plies using 3 rows of 10d Box nails (.128x3") at 12" o.c.. Maximum end distance not to exceed 6"

Capacity	0.0 %
Load	0.0 PLF
Yield Limit per Foot	245.6 PLF
Yield Limit per Fastener	81.9 lb.
Yield Mode	IV
Edge Distance	1 1/2"
Min. End Distance	3"
Load Combination	
Duration Factor	1.00

Notes

Calculated Structured Designs is responsible only of the structural adequacy of this component based on the design criteria and loadings shown. It is the responsibility of the customer and/or the contractor to ensure the component suitability of the intended application, and to verify the dimensions and loads.

Lumber

1. Dry service conditions, unless noted otherwise
2. LVL not to be treated with fire retardant or corrosive

chemicals

Handling & Installation

1. LVL beams must not be cut or drilled
2. Refer to manufacturer's product information regarding installation requirements, multi-ply fastening details, beam strength values, and code approvals
3. Damaged Beams must not be used
4. Design assumes top edge is laterally restrained
5. Provide lateral support at bearing points to avoid lateral displacement and rotation

6. For flat roofs provide proper drainage to prevent ponding

This design is valid until 2/26/2023

Manufacturer Info

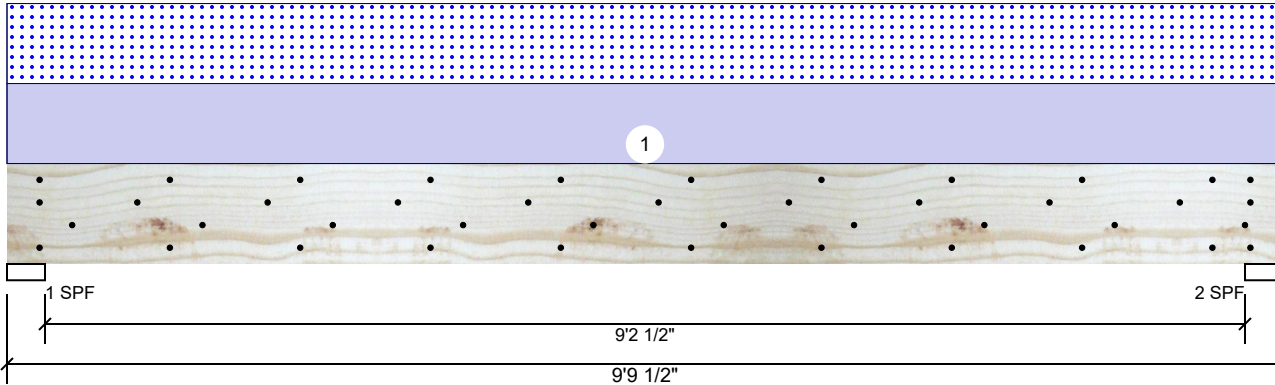
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BM5 Kerto-S LVL 1.750" X 9.250" 2-Ply - PASSED

Level: Level



Member Information

Type:	Girder	Application:	Floor
Plies:	2	Design Method:	ASD
Moisture Condition:	Dry	Building Code:	IBC 2012
Deflection LL:	480	Load Sharing:	No
Deflection TL:	360	Deck:	Not Checked
Importance:	Normal		
Temperature:	Temp <= 100°F		

Reactions UNPATTERNED lb (Uplift)

Brg	Live	Dead	Snow	Wind	Const
1	0	1573	1537	0	0
2	0	1573	1537	0	0

Bearings

Bearing	Length	Cap. React	D/L lb	Total	Ld. Case	Ld. Comb.
1 - SPF	3.500"	60%	1573 / 1537	3110	L	D+S
2 - SPF	3.500"	60%	1573 / 1537	3110	L	D+S

Analysis Results

Analysis	Actual	Location	Allowed	Capacity	Comb.	Case
Moment	6917 ft-lb	4'10 3/4"	14423 ft-lb	0.480 (48%)	D+S	L
Unbraced	6917 ft-lb	4'10 3/4"	7832 ft-lb	0.883 (88%)	D+S	L
Shear	2959 lb	1'	7943 lb	0.373 (37%)	D+S	L
LL Defl inch	0.128 (L/873)	4'10 3/4"	0.233 (L/480)	0.550 (55%)	S	L
TL Defl inch	0.260 (L/432)	4'10 3/4"	0.311 (L/360)	0.830 (83%)	D+S	L

Design Notes

- 1 Fasten all plies using 4 rows of 10d Box nails (.128x3") at 12" o.c. Maximum end distance not to exceed 6".
- 2 Refer to last page of calculations for fasteners required for specified loads.
- 3 Girders are designed to be supported on the bottom edge only.
- 4 Top braced at bearings.
- 5 Bottom braced at bearings.
- 6 Lateral slenderness ratio based on single ply width.

ID	Load Type	Location	Trib Width	Side	Dead 0.9	Live 1	Snow 1.15	Wind 1.6	Const. 1.25	Comments
1	Uniform			Far Face	314 PLF	0 PLF	314 PLF	0 PLF	0 PLF	A3
	Self Weight				7 PLF					

Notes

Calculated Structured Designs is responsible only of the structural adequacy of this component based on the design criteria and loadings shown. It is the responsibility of the customer and/or the contractor to ensure the component suitability of the intended application, and to verify the dimensions and loads.

Lumber

1. Dry service conditions, unless noted otherwise
2. LVL not to be treated with fire retardant or corrosive

chemicals

Handling & Installation

1. LVL beams must not be cut or drilled
2. Refer to manufacturer's product information regarding installation requirements, multi-ply fastening details, beam strength values, and code approvals
3. Damaged Beams must not be used
4. Design assumes top edge is laterally restrained
5. Provide lateral support at bearing points to avoid lateral displacement and rotation

6. For flat roofs provide proper drainage to prevent ponding

This design is valid until 2/26/2023

Manufacturer Info

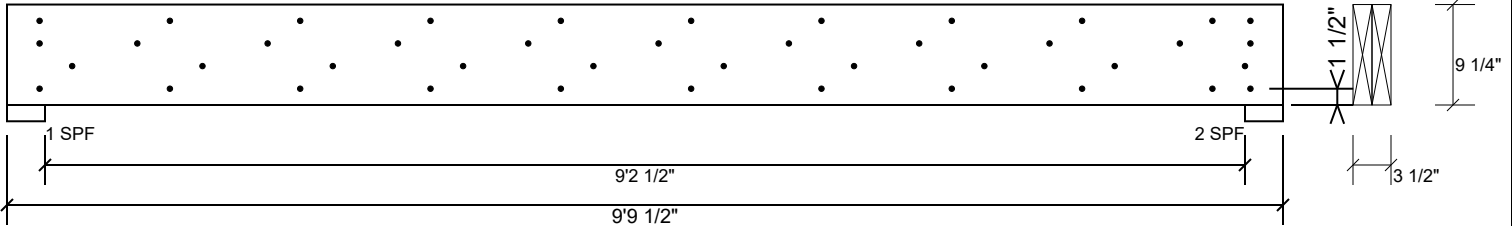
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BM5 Kerto-S LVL 1.750" X 9.250" 2-Ply - PASSED

Level: Level



Multi-Ply Analysis

Fasten all plies using 4 rows of 10d Box nails (.128x3") at 12" o.c.. Maximum end distance not to exceed 6"

Capacity	83.4 %
Load	314.0 PLF
Yield Limit per Foot	376.5 PLF
Yield Limit per Fastener	94.1 lb.
Yield Mode	IV
Edge Distance	1 1/2"
Min. End Distance	3"
Load Combination	D+S
Duration Factor	1.15

Notes

Calculated Structured Designs is responsible only of the structural adequacy of this component based on the design criteria and loadings shown. It is the responsibility of the customer and/or the contractor to ensure the component suitability of the intended application, and to verify the dimensions and loads.

Lumber

1. Dry service conditions, unless noted otherwise
2. LVL not to be treated with fire retardant or corrosive

chemicals

Handling & Installation

1. LVL beams must not be cut or drilled
2. Refer to manufacturer's product information regarding installation requirements, multi-ply fastening details, beam strength values, and code approvals
3. Damaged Beams must not be used
4. Design assumes top edge is laterally restrained
5. Provide lateral support at bearing points to avoid lateral displacement and rotation

6. For flat roofs provide proper drainage to prevent ponding

This design is valid until 2/26/2023

Manufacturer Info

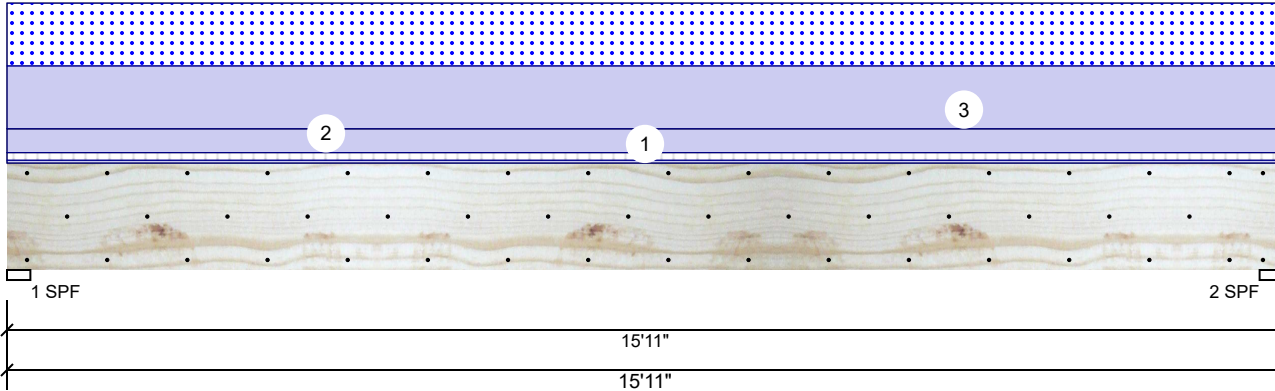
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BM6 Kerto-S LVL 1.750" X 16.000" 3-Ply - PASSED

Level: Level



Member Information

Type:	Girder
Plies:	3
Moisture Condition:	Dry
Deflection LL:	480
Deflection TL:	360
Importance:	Normal
Temperature:	Temp <= 100°F

Application:	Floor
Design Method:	ASD
Building Code:	IBC 2012
Load Sharing:	Yes
Deck:	Not Checked

Reactions UNPATTERNED lb (Uplift)

Brg	Live	Dead	Snow	Wind	Const
1	318	3881	2618	0	0
2	318	3881	2618	0	0

Bearings

Bearing	Length	Cap.	React D/L	Ib	Total	Ld. Case	Ld. Comb.
1 - SPF	3.500"	83%	3881 / 2618	6499	L	D+S	
2 - SPF	3.500"	83%	3881 / 2618	6499	L	D+S	

Analysis Results

Analysis	Actual	Location	Allowed	Capacity	Comb.	Case
Moment	24460 ft-lb	7'11 1/2"	62010 ft-lb	0.394 (39%)	D+S	L
Unbraced	24460 ft-lb	7'11 1/2"	24466 ft-lb	1.000 (100%)	D+S	L
Shear	5232 lb	1'6 5/8"	20608 lb	0.254 (25%)	D+S	L
LL Defl inch	0.132 (L/1406)	7'11 9/16"	0.387 (L/480)	0.340 (34%)	S	L
TL Defl inch	0.328 (L/567)	7'11 9/16"	0.516 (L/360)	0.640 (64%)	D+S	L

Design Notes

- 1 Fasten all plies using 3 rows of 10d Box nails (.128x3") at 12" o.c. Maximum end distance not to exceed 6".
- 2 Refer to last page of calculations for fasteners required for specified loads.
- 3 Girders are designed to be supported on the bottom edge only.
- 4 Top loads must be supported equally by all plies.
- 5 Top must be laterally braced at a maximum of 7'3" o.c.
- 6 Bottom braced at bearings.
- 7 Lateral slenderness ratio based on single ply width.

ID	Load Type	Location	Trib Width	Side	Dead 0.9	Live 1	Snow 1.15	Wind 1.6	Const. 1.25	Comments
1	Uniform			Top	15 PLF	40 PLF	0 PLF	0 PLF	0 PLF	FLOOR
2	Uniform			Top	125 PLF	0 PLF	0 PLF	0 PLF	0 PLF	WALL
3	Uniform			Top	329 PLF	0 PLF	329 PLF	0 PLF	0 PLF	A2
	Self Weight				19 PLF					

Notes

Calculated Structured Designs is responsible only of the structural adequacy of this component based on the design criteria and loadings shown. It is the responsibility of the customer and/or the contractor to ensure the component suitability of the intended application, and to verify the dimensions and loads.

Lumber

1. Dry service conditions, unless noted otherwise
2. LVL not to be treated with fire retardant or corrosive

chemicals

Handling & Installation

1. LVL beams must not be cut or drilled
2. Refer to manufacturer's product information regarding installation requirements, multi-ply fastening details, beam strength values, and code approvals
3. Damaged Beams must not be used
4. Design assumes top edge is laterally restrained
5. Provide lateral support at bearing points to avoid lateral displacement and rotation

6. For flat roofs provide proper drainage to prevent ponding

This design is valid until 2/26/2023

Manufacturer Info

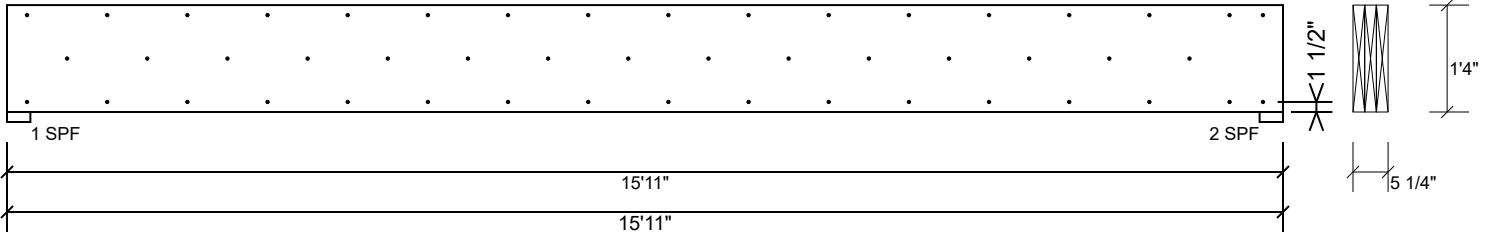
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BM6 Kerto-S LVL 1.750" X 16.000" 3-Ply - PASSED

Level: Level



Multi-Ply Analysis

Fasten all plies using 3 rows of 10d Box nails (.128x3") at 12" o.c.. Nail from both sides. Maximum end distance not to exceed 6"

Capacity	0.0 %
Load	0.0 PLF
Yield Limit per Foot	245.6 PLF
Yield Limit per Fastener	81.9 lb.
Yield Mode	IV
Edge Distance	1 1/2"
Min. End Distance	3"
Load Combination	
Duration Factor	1.00

Notes

Calculated Structured Designs is responsible only of the structural adequacy of this component based on the design criteria and loadings shown. It is the responsibility of the customer and/or the contractor to ensure the component suitability of the intended application, and to verify the dimensions and loads.

Lumber

1. Dry service conditions, unless noted otherwise
2. LVL not to be treated with fire retardant or corrosive

chemicals

Handling & Installation

1. LVL beams must not be cut or drilled
2. Refer to manufacturer's product information regarding installation requirements, multi-ply fastening details, beam strength values, and code approvals
3. Damaged Beams must not be used
4. Design assumes top edge is laterally restrained
5. Provide lateral support at bearing points to avoid lateral displacement and rotation

6. For flat roofs provide proper drainage to prevent ponding

This design is valid until 2/26/2023

Manufacturer Info

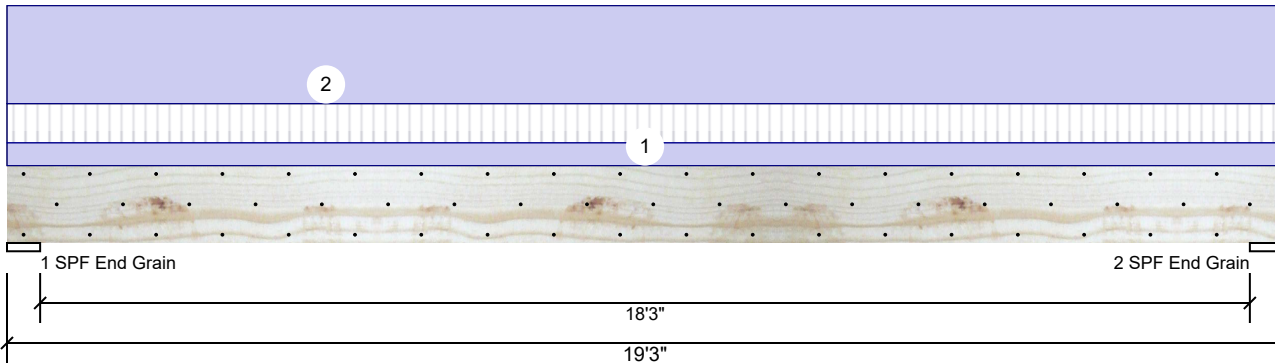
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GDH Kerto-S LVL 1.750" X 14.000" 2-Ply - PASSED

Level: Level



Member Information

Type:	Girder	Application:	Floor
Plies:	2	Design Method:	ASD
Moisture Condition:	Dry	Building Code:	IBC 2012
Deflection LL:	480	Load Sharing:	No
Deflection TL:	360	Deck:	Not Checked
Importance:	Normal		
Temperature:	Temp <= 100°F		

Reactions UNPATTERNED lb (Uplift)

Brg	Live	Dead	Snow	Wind	Const
1	578	1885	0	0	0
2	578	1885	0	0	0

Bearings

Bearing	Length	Cap. React	D/L lb	Total	Ld. Case	Ld. Comb.
1 - SPF End Grain	6.000"	13%	1885 / 578	2463	L	D+L
2 - SPF End Grain	6.000"	13%	1885 / 577	2463	L	D+L

Analysis Results

Analysis	Actual	Location	Allowed	Capacity	Comb.	Case
Moment	10800 ft-lb	9'7 1/2"	26999 ft-lb	0.400 (40%)	D+L	L
Unbraced	10800 ft-lb	9'7 1/2"	10812 ft-lb	0.999 (100%)	D+L	L
Shear	2052 lb	1'7 1/4"	10453 lb	0.196 (20%)	D+L	L
LL Defl inch	0.102 (L/2160)	9'7 9/16"	0.459 (L/480)	0.220 (22%)	L	L
TL Defl inch	0.435 (L/506)	9'7 9/16"	0.612 (L/360)	0.710 (71%)	D+L	L

Design Notes

- 1 Fasten all plies using 3 rows of 10d Box nails (.128x3") at 12" o.c. Maximum end distance not to exceed 6".
- 2 Refer to last page of calculations for fasteners required for specified loads.
- 3 Girders are designed to be supported on the bottom edge only.
- 4 Top loads must be supported equally by all plies.
- 5 Top must be laterally braced at a maximum of 9'11 1/4" o.c.
- 6 Bottom braced at bearings.
- 7 Lateral slenderness ratio based on single ply width.

ID	Load Type	Location	Trib Width	Side	Dead 0.9	Live 1	Snow 1.15	Wind 1.6	Const. 1.25	Comments
1	Uniform			Top	35 PLF	60 PLF	0 PLF	0 PLF	0 PLF	F+4
2	Uniform			Top	150 PLF	0 PLF	0 PLF	0 PLF	0 PLF	WALL
	Self Weight				11 PLF					

Notes

Calculated Structured Designs is responsible only of the structural adequacy of this component based on the design criteria and loadings shown. It is the responsibility of the customer and/or the contractor to ensure the component suitability of the intended application, and to verify the dimensions and loads.

Lumber

1. Dry service conditions, unless noted otherwise
2. LVL not to be treated with fire retardant or corrosive chemicals

Handling & Installation

1. LVL beams must not be cut or drilled
2. Refer to manufacturer's product information regarding installation requirements, multi-ply fastening details, beam strength values, and code approvals
3. Damaged Beams must not be used
4. Design assumes top edge is laterally restrained
5. Provide lateral support at bearing points to avoid lateral displacement and rotation

6. For flat roofs provide proper drainage to prevent ponding

This design is valid until 2/26/2023

Manufacturer Info

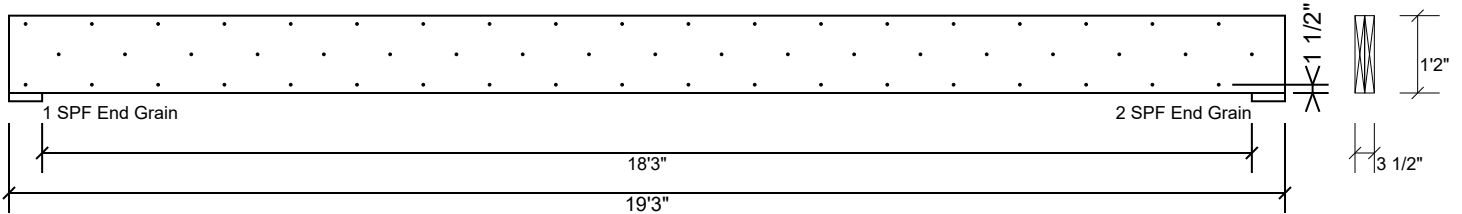
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GDH Kerto-S LVL 1.750" X 14.000" 2-Ply - PASSED

Level: Level



Multi-Ply Analysis

Fasten all plies using 3 rows of 10d Box nails (.128x3") at 12" o.c.. Maximum end distance not to exceed 6"

Capacity	0.0 %
Load	0.0 PLF
Yield Limit per Foot	245.6 PLF
Yield Limit per Fastener	81.9 lb.
Yield Mode	IV
Edge Distance	1 1/2"
Min. End Distance	3"
Load Combination	
Duration Factor	1.00

Notes

Calculated Structured Designs is responsible only of the structural adequacy of this component based on the design criteria and loadings shown. It is the responsibility of the customer and/or the contractor to ensure the component suitability of the intended application, and to verify the dimensions and loads.

Lumber

1. Dry service conditions, unless noted otherwise
2. LVL not to be treated with fire retardant or corrosive

chemicals

Handling & Installation

1. LVL beams must not be cut or drilled
2. Refer to manufacturer's product information regarding installation requirements, multi-ply fastening details, beam strength values, and code approvals
3. Damaged Beams must not be used
4. Design assumes top edge is laterally restrained
5. Provide lateral support at bearing points to avoid lateral displacement and rotation

6. For flat roofs provide proper drainage to prevent ponding

This design is valid until 2/26/2023

Manufacturer Info

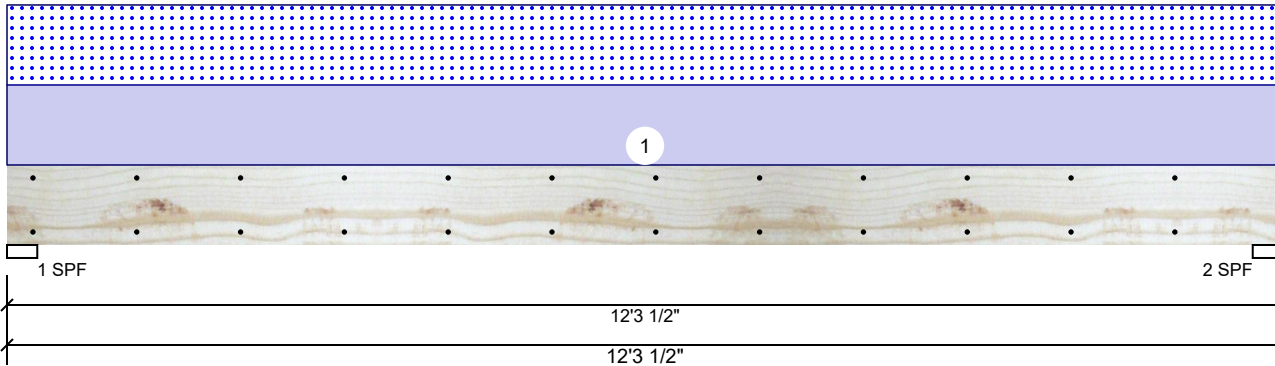
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BPB Kerto-S LVL 1.750" X 9.250" 2-Ply - PASSED

Level: Level



Member Information

Type:	Girder
Plies:	2
Moisture Condition:	Dry
Deflection LL:	480
Deflection TL:	360
Importance:	Normal
Temperature:	Temp <= 100°F

Application:	Floor
Design Method:	ASD
Building Code:	IBC 2012
Load Sharing:	No
Deck:	Not Checked

Reactions UNPATTERNED lb (Uplift)

Brg	Live	Dead	Snow	Wind	Const
1	0	1058	1014	0	0
2	0	1058	1014	0	0

Bearings

Bearing	Length	Cap. React	D/L lb	Total	Ld. Case	Ld. Comb.
1 - SPF	3.500"	40%	1058 / 1014	2072	L	D+S
2 - SPF	3.500"	40%	1058 / 1014	2072	L	D+S

Analysis Results

Analysis	Actual	Location	Allowed	Capacity	Comb.	Case
Moment	5902 ft-lb	6'1 3/4"	14423 ft-lb	0.409 (41%)	D+S	L
Unbraced	5902 ft-lb	6'1 3/4"	6421 ft-lb	0.919 (92%)	D+S	L
Shear	1735 lb	11'3 1/2"	7943 lb	0.218 (22%)	D+S	L
LL Defl inch	0.168 (L/846)	6'1 3/4"	0.296 (L/480)	0.570 (57%)	S	L
TL Defl inch	0.343 (L/414)	6'1 3/4"	0.394 (L/360)	0.870 (87%)	D+S	L

Design Notes

- 1 Fasten all plies using 2 rows of 10d Box nails (.128x3") at 12" o.c. Maximum end distance not to exceed 6".
- 2 Refer to last page of calculations for fasteners required for specified loads.
- 3 Girders are designed to be supported on the bottom edge only.
- 4 Top loads must be supported equally by all plies.
- 5 Top braced at bearings.
- 6 Bottom braced at bearings.
- 7 Lateral slenderness ratio based on single ply width.

ID	Load Type	Location	Trib Width	Side	Dead 0.9	Live 1	Snow 1.15	Wind 1.6	Const. 1.25	Comments
1	Uniform			Top	165 PLF	0 PLF	165 PLF	0 PLF	0 PLF	P2
	Self Weight				7 PLF					

Notes

Calculated Structured Designs is responsible only of the structural adequacy of this component based on the design criteria and loadings shown. It is the responsibility of the customer and/or the contractor to ensure the component suitability of the intended application, and to verify the dimensions and loads.

Lumber

1. Dry service conditions, unless noted otherwise
2. LVL not to be treated with fire retardant or corrosive chemicals

Handling & Installation

1. LVL beams must not be cut or drilled
2. Refer to manufacturer's product information regarding installation requirements, multi-ply fastening details, beam strength values, and code approvals
3. Damaged Beams must not be used
4. Design assumes top edge is laterally restrained
5. Provide lateral support at bearing points to avoid lateral displacement and rotation

6. For flat roofs provide proper drainage to prevent ponding

This design is valid until 2/26/2023

Manufacturer Info

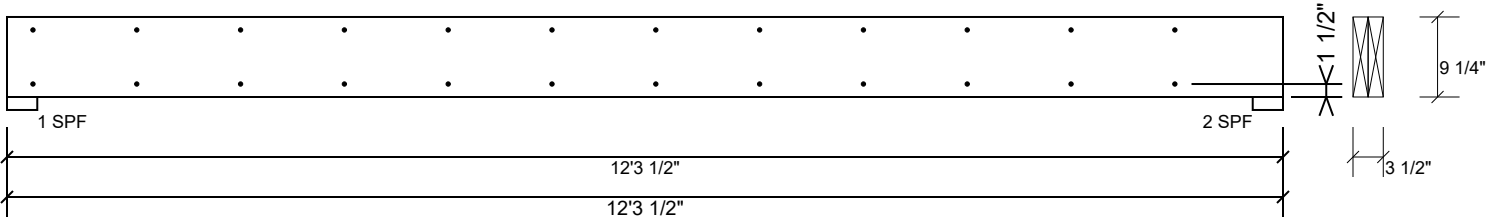
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BPB Kerto-S LVL 1.750" X 9.250" 2-Ply - PASSED

Level: Level



Multi-Ply Analysis

Fasten all plies using 2 rows of 10d Box nails (.128x3") at 12" o.c.. Maximum end distance not to exceed 6"

Capacity	0.0 %
Load	0.0 PLF
Yield Limit per Foot	163.7 PLF
Yield Limit per Fastener	81.9 lb.
Yield Mode	IV
Edge Distance	1 1/2"
Min. End Distance	3"
Load Combination	
Duration Factor	1.00

Notes

Calculated Structured Designs is responsible only of the structural adequacy of this component based on the design criteria and loadings shown. It is the responsibility of the customer and/or the contractor to ensure the component suitability of the intended application, and to verify the dimensions and loads.

Lumber

1. Dry service conditions, unless noted otherwise
2. LVL not to be treated with fire retardant or corrosive

chemicals

Handling & Installation

1. LVL beams must not be cut or drilled
2. Refer to manufacturer's product information regarding installation requirements, multi-ply fastening details, beam strength values, and code approvals
3. Damaged Beams must not be used
4. Design assumes top edge is laterally restrained
5. Provide lateral support at bearing points to avoid lateral displacement and rotation

6. For flat roofs provide proper drainage to prevent ponding

This design is valid until 2/26/2023

Manufacturer Info

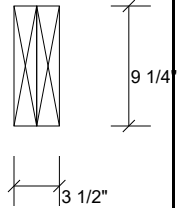
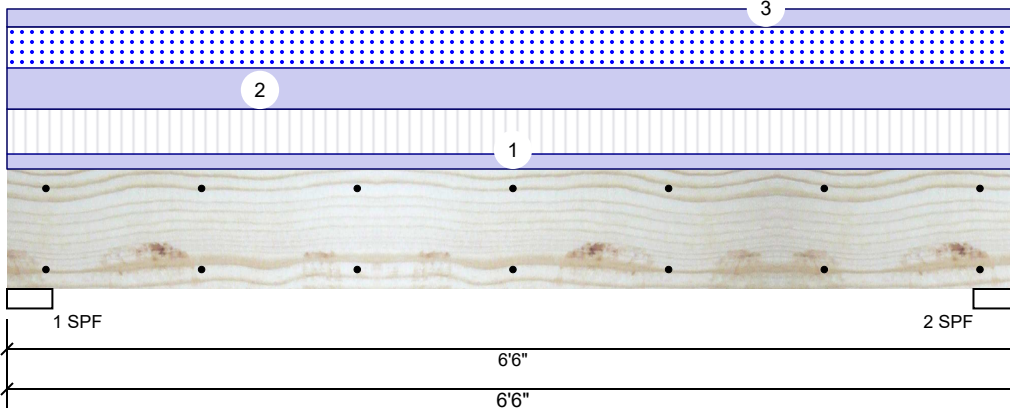
Metsä Wood
 301 Merritt 7 Building, 2nd Floor
 Norwalk, CT 06851
 (800) 622-5850
 www.metsawood.com/us
 ICC-ES: ESR-3633

Comtech, Inc.
 1001 S. Reilly Road, Suite #639
 Fayetteville, NC
 USA
 28314
 910-864-TRUS



H6 Kerto-S LVL 1.750" X 9.250" 2-Ply - PASSED

Level: Level



Member Information

Type:	Girder
Plies:	2
Moisture Condition:	Dry
Deflection LL:	480
Deflection TL:	360
Importance:	Normal
Temperature:	Temp <= 100°F

Application:	Floor
Design Method:	ASD
Building Code:	IBC 2012
Load Sharing:	No
Deck:	Not Checked

Reactions UNPATTERNED lb (Uplift)

Brg	Live	Dead	Snow	Wind	Const
1	1229	2045	1125	0	0
2	1229	2045	1125	0	0

Bearings

Bearing	Length	Cap.	React D/L	Ib	Total	Ld. Case	Ld. Comb.
1 - SPF	3.500"	73%	2045 / 1765	3810	L	D+0.75(L+S)	
2 - SPF	3.500"	73%	2045 / 1765	3810	L	D+0.75(L+S)	

Analysis Results

Analysis	Actual	Location	Allowed	Capacity	Comb.	Case
Moment	5348 ft-lb	3'3"	14423 ft-lb	0.371 (37%)	D+0.75(L+S)	L
Unbraced	5348 ft-lb	3'3"	10533 ft-lb	0.508 (51%)	D+0.75(L+S)	L
Shear	2637 lb	5'6"	7943 lb	0.332 (33%)	D+0.75(L+S)	L
LL Defl inch	0.044 (L/1645)	3'3"	0.151 (L/480)	0.290 (29%)	0.75(L+S)	L
TL Defl inch	0.095 (L/762)	3'3"	0.201 (L/360)	0.470 (47%)	D+0.75(L+S)	L

Design Notes

- 1 Fasten all plies using 2 rows of 10d Box nails (.128x3") at 12" o.c. Maximum end distance not to exceed 6".
- 2 Refer to last page of calculations for fasteners required for specified loads.
- 3 Girders are designed to be supported on the bottom edge only.
- 4 Top loads must be supported equally by all plies.
- 5 Top braced at bearings.
- 6 Bottom braced at bearings.
- 7 Lateral slenderness ratio based on single ply width.

ID	Load Type	Location	Trib Width	Side	Dead 0.9	Live 1	Snow 1.15	Wind 1.6	Const. 1.25	Comments
1	Uniform			Top	126 PLF	378 PLF	0 PLF	0 PLF	0 PLF	F03
2	Uniform			Top	346 PLF	0 PLF	346 PLF	0 PLF	0 PLF	A3A
3	Uniform			Top	150 PLF	0 PLF	0 PLF	0 PLF	0 PLF	WALL
	Self Weight				7 PLF					

Notes

Calculated Structured Designs is responsible only of the structural adequacy of this component based on the design criteria and loadings shown. It is the responsibility of the customer and/or the contractor to ensure the component suitability of the intended application, and to verify the dimensions and loads.

Lumber

1. Dry service conditions, unless noted otherwise
2. LVL not to be treated with fire retardant or corrosive

chemicals

Handling & Installation

1. LVL beams must not be cut or drilled
2. Refer to manufacturer's product information regarding installation requirements, multi-ply fastening details, beam strength values, and code approvals
3. Damaged Beams must not be used
4. Design assumes top edge is laterally restrained
5. Provide lateral support at bearing points to avoid lateral displacement and rotation

6. For flat roofs provide proper drainage to prevent ponding

This design is valid until 2/26/2023

Manufacturer Info

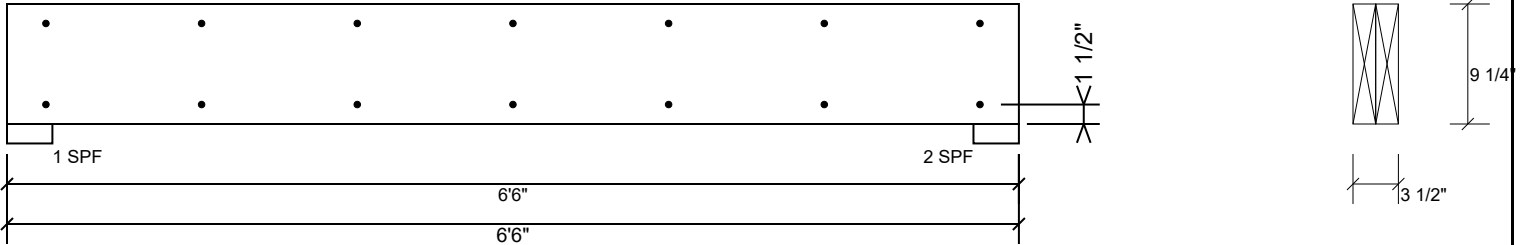
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H6 Kerto-S LVL 1.750" X 9.250" 2-Ply - PASSED

Level: Level



Multi-Ply Analysis

Fasten all plies using 2 rows of 10d Box nails (.128x3") at 12" o.c.. Maximum end distance not to exceed 6"

Capacity	0.0 %
Load	0.0 PLF
Yield Limit per Foot	163.7 PLF
Yield Limit per Fastener	81.9 lb.
Yield Mode	IV
Edge Distance	1 1/2"
Min. End Distance	3"
Load Combination	
Duration Factor	1.00

Notes

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Lumber

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2. LVL not to be treated with fire retardant or corrosive

chemicals

Handling & Installation

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2. Refer to manufacturer's product information regarding installation requirements, multi-ply fastening details, beam strength values, and code approvals
3. Damaged Beams must not be used
4. Design assumes top edge is laterally restrained
5. Provide lateral support at bearing points to avoid lateral displacement and rotation

6. For flat roofs provide proper drainage to prevent ponding

This design is valid until 2/26/2023

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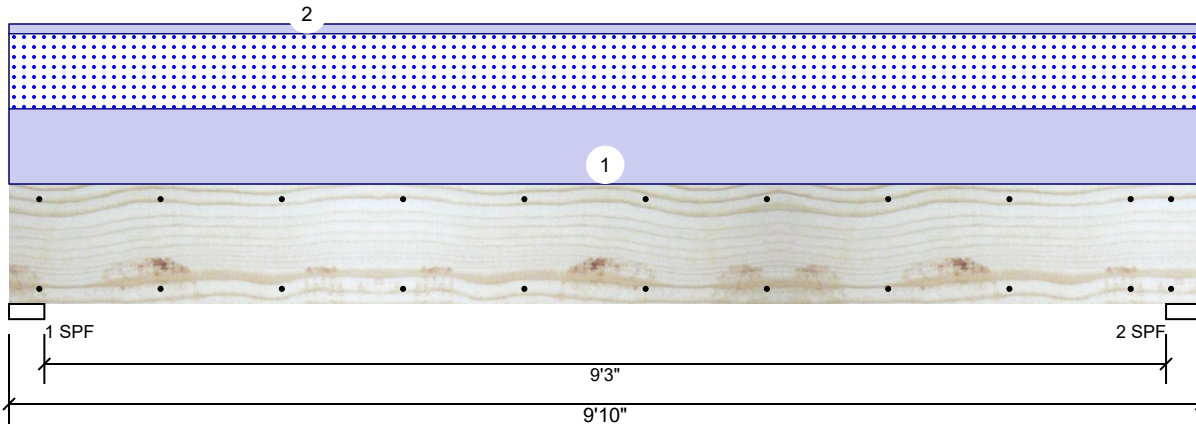
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GDH-2 Kerto-S LVL 1.750" X 11.875" 2-Ply - PASSED

Level: Level



Member Information

Type:	Girder	Application:	Floor
Plies:	2	Design Method:	ASD
Moisture Condition:	Dry	Building Code:	IBC 2012
Deflection LL:	480	Load Sharing:	No
Deflection TL:	360	Deck:	Not Checked
Importance:	Normal		
Temperature:	Temp <= 100°F		

Reactions UNPATTERNED lb (Uplift)

Brg	Live	Dead	Snow	Wind	Const
1	0	1343	1151	0	0
2	0	1343	1151	0	0

Bearings

Bearing	Length	Cap.	React D/L	Ib	Total	Ld. Case	Ld. Comb.
1 - SPF	3.500"	48%	1343 / 1151	2494	L	D+S	
2 - SPF	3.500"	48%	1343 / 1151	2494	L	D+S	

Analysis Results

Analysis	Actual	Location	Allowed	Capacity	Comb.	Case
Moment	5573 ft-lb	4'11"	22897 ft-lb	0.243 (24%)	D+S	L
Unbraced	5573 ft-lb	4'11"	9857 ft-lb	0.565 (57%)	D+S	L
Shear	1876 lb	1'2 5/8"	10197 lb	0.184 (18%)	D+S	L
LL Defl inch	0.049 (L/2307)	4'11"	0.234 (L/480)	0.210 (21%)	S	L
TL Defl inch	0.106 (L/1064)	4'11"	0.312 (L/360)	0.340 (34%)	D+S	L

Design Notes

- 1 Fasten all plies using 2 rows of 10d Box nails (.128x3") at 12" o.c. Maximum end distance not to exceed 6".
- 2 Refer to last page of calculations for fasteners required for specified loads.
- 3 Girders are designed to be supported on the bottom edge only.
- 4 Top loads must be supported equally by all plies.
- 5 Top braced at bearings.
- 6 Bottom braced at bearings.
- 7 Lateral slenderness ratio based on single ply width.

ID	Load Type	Location	Trib Width	Side	Dead 0.9	Live 1	Snow 1.15	Wind 1.6	Const. 1.25	Comments
1	Uniform			Top	234 PLF	0 PLF	234 PLF	0 PLF	0 PLF	H2
2	Uniform			Top	30 PLF	0 PLF	0 PLF	0 PLF	0 PLF	wall
	Self Weight				9 PLF					

Notes

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Lumber

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2. LVL not to be treated with fire retardant or corrosive

chemicals

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2. Refer to manufacturer's product information regarding installation requirements, multi-ply fastening details, beam strength values, and code approvals
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4. Design assumes top edge is laterally restrained
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6. For flat roofs provide proper drainage to prevent ponding

This design is valid until 2/26/2023

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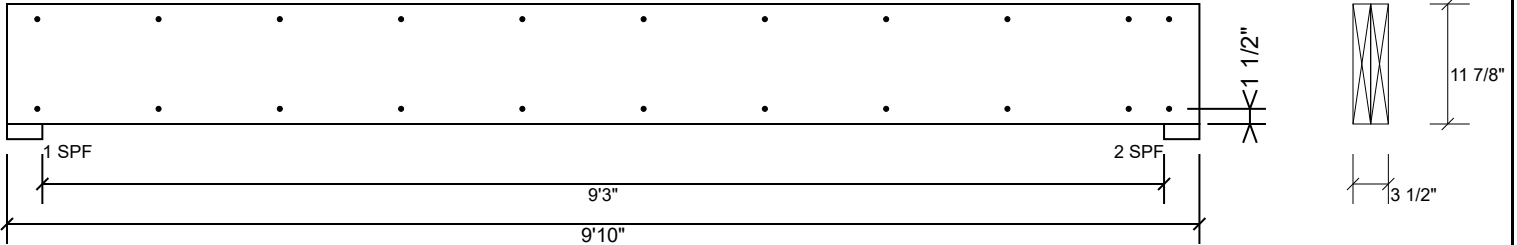
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GDH-2 Kerto-S LVL 1.750" X 11.875" 2-Ply - PASSED

Level: Level



Multi-Ply Analysis

Fasten all plies using 2 rows of 10d Box nails (.128x3") at 12" o.c.. Maximum end distance not to exceed 6"

Capacity	0.0 %
Load	0.0 PLF
Yield Limit per Foot	163.7 PLF
Yield Limit per Fastener	81.9 lb.
Yield Mode	IV
Edge Distance	1 1/2"
Min. End Distance	3"
Load Combination	
Duration Factor	1.00

Notes

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