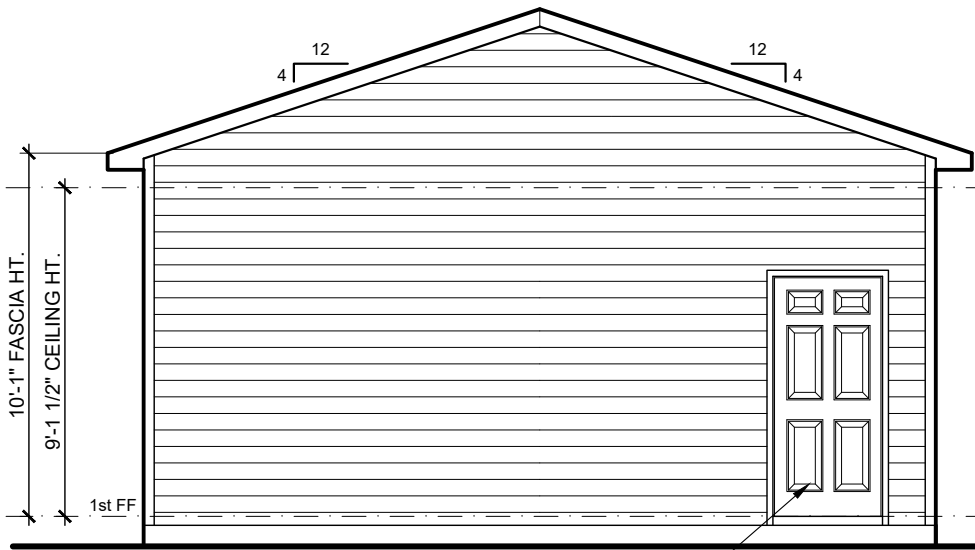


2-CAR GARAGE

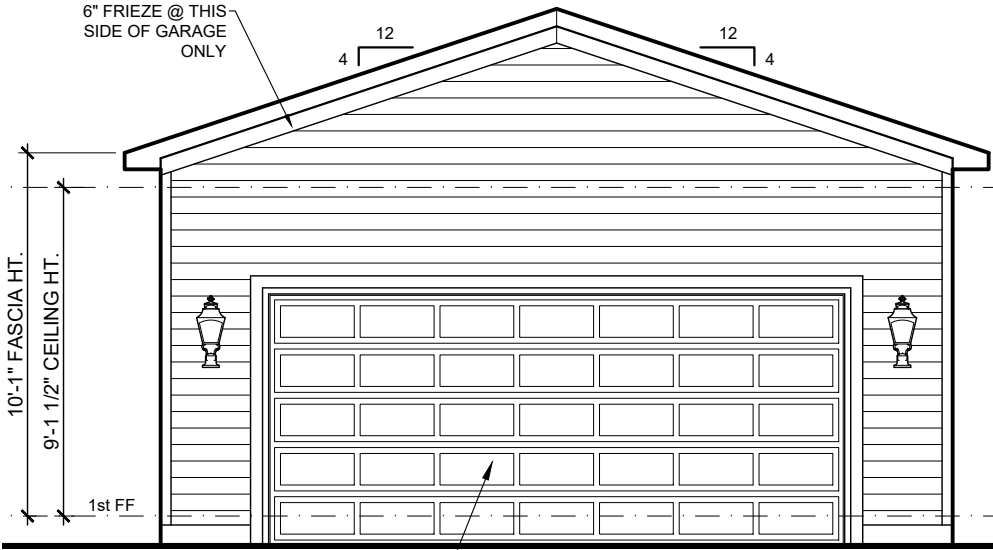
ALL OVERHANGS 12"
UNLESS OTHERWISE NOTED.



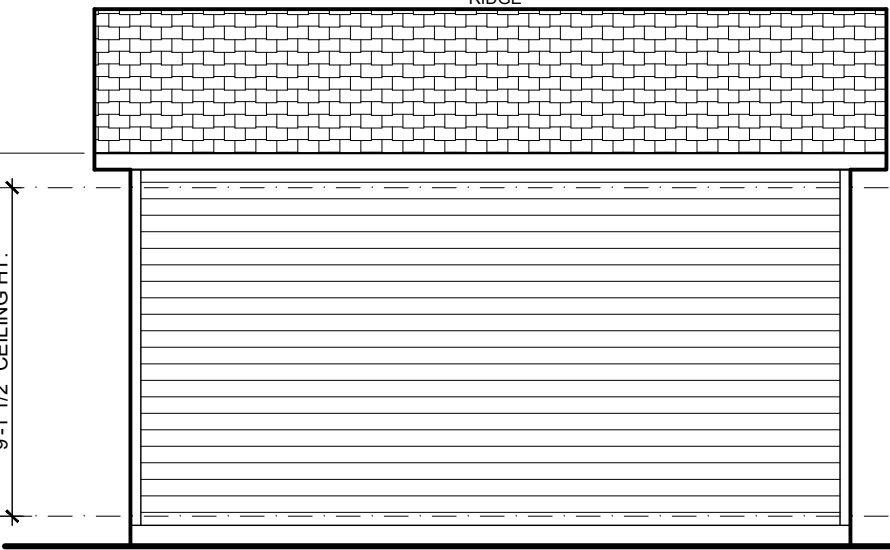
Square Footages:
1-Car Garage.....275 sf
2-Car Garage.....440 sf



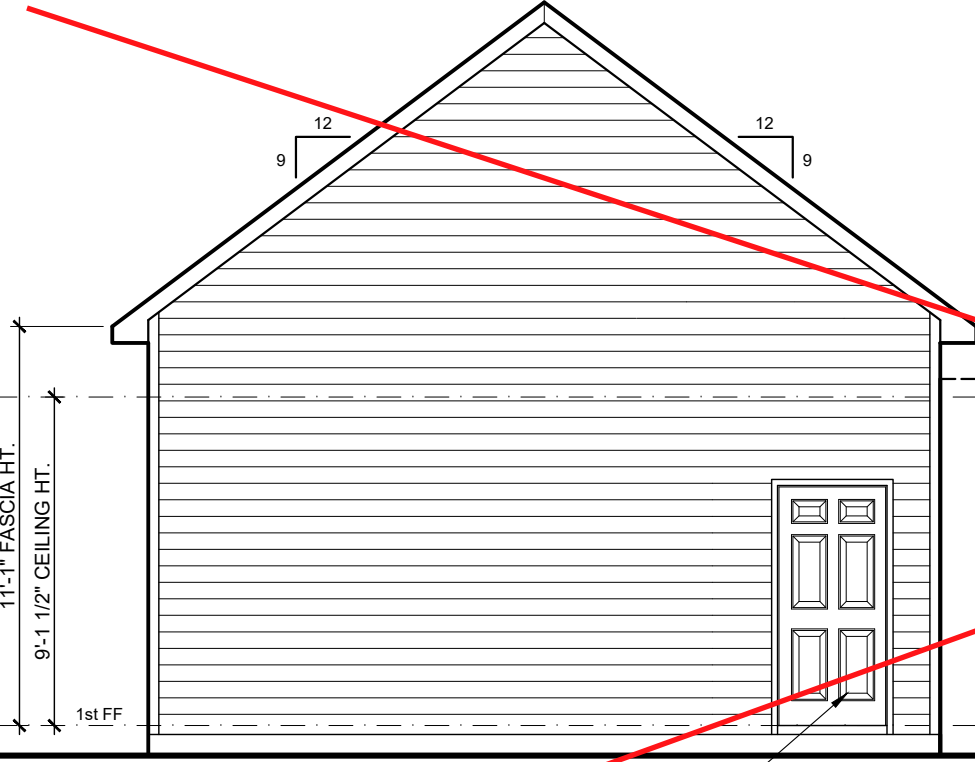
REAR ELEVATION
3/16" = 1'-0"



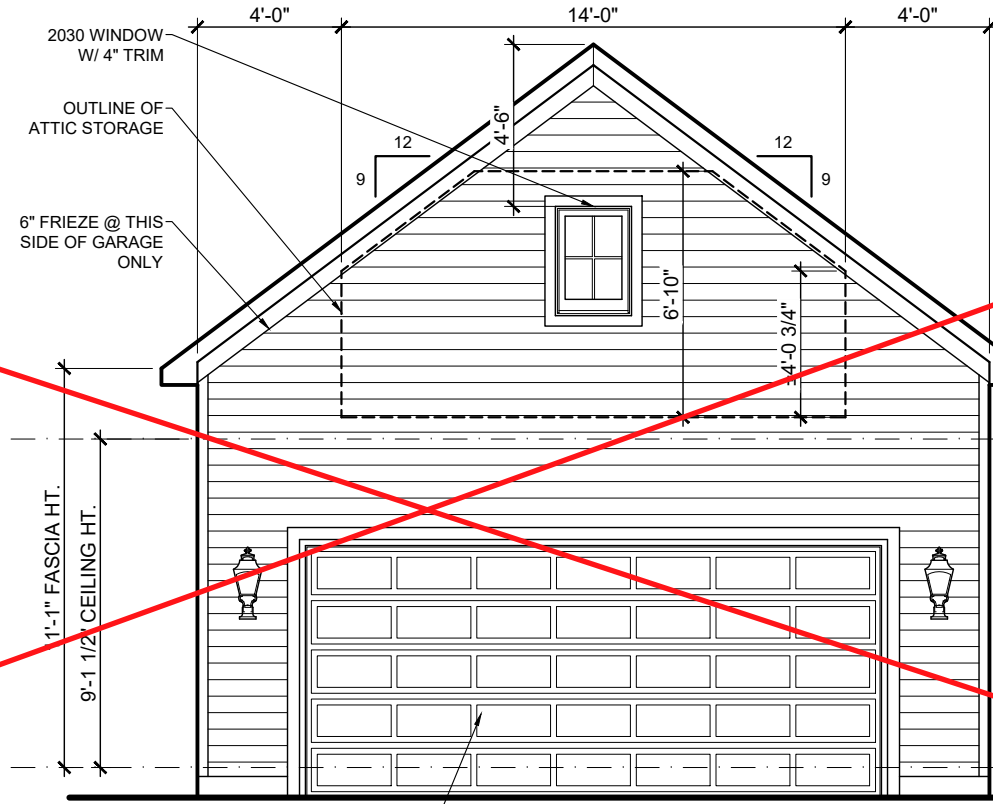
FRONT ELEVATION
3/16" = 1'-0"



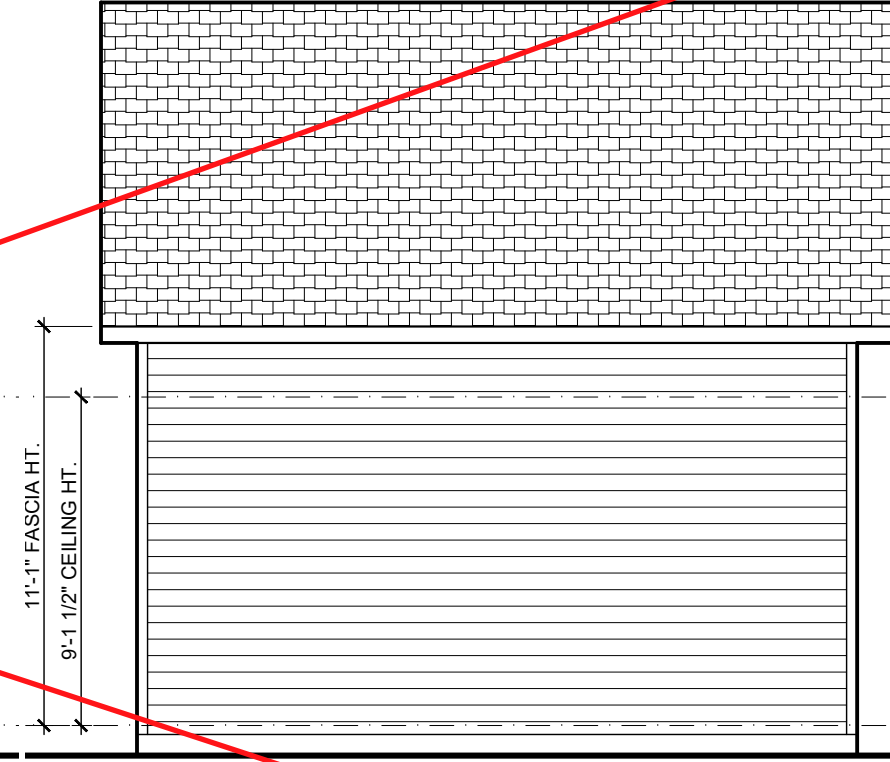
LEFT/RIGHT ELEVATION
3/16" = 1'-0"



REAR ELEVATION
W/ ATTIC OPTION
3/16" = 1'-0"



FRONT ELEVATION
W/ ATTIC OPTION
3/16" = 1'-0"



LEFT/RIGHT ELEVATION
W/ ATTIC OPTION
3/16" = 1'-0"

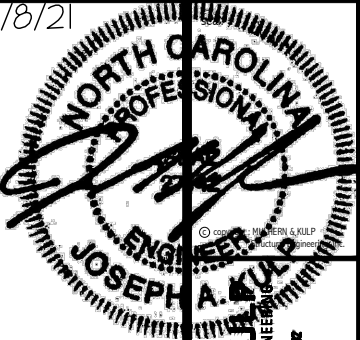
SEE SHEET A3 FOR
ENHANCED OPTIONS.

Detached Garage 2-Car
v.02.00.00.00

Features:
Drawn By: ATW
Rev By: am

Date: 7/11/2022

REVERSAL



MULHERN+KULP
RESIDENTIAL STRUCTURAL ENGINEERING
300 Bluebell Ave. Building 4 - Parker, PA 15067
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NC License # C-3825



M&K project number:
192-17022
project mgr: **JAK**
drawn by: **AMG**
issue date: **05-03-19**

REVISIONS:	
date:	initial:
02/12/2018	RAP
CHANGE FLOOR TRUSS LAYOUT	BEAR
04/11/2018	RAP
UPDATE PLAN 1, SCHEMATIC	



GENERAL STRUCTURAL NOTES
ALEXANDRIA II
WIND SPEED < 115 MPH NORTH CAROLINA

sheet:
S0.0

CONNECTION SPECIFICATIONS (TYP. U.N.O.)		
DESCRIPTION OF BLDG. ELEMENT	3"x0.131" NAILS	3"x0.120" NAILS
JOIST TO SOLE PLATE	(3) TOENAILS	(3) TOENAILS*
SOLE PL. TO JOIST/RIM OR BLK'G	NAILS @ 4" o.c.	NAILS @ 4" o.c.
STUD TO SOLE PLATE	(2) TOENAILS	(3) TOENAILS*
TOP OR SOLE PLATE TO STUD	(2) NAILS	(3) NAILS
RIM TO TOP PLATE	TOENAILS @ 8" o.c.	TOENAILS @ 6" o.c.*
BLK'G, BTWN. JOISTS TO TOP PL.	(3) TOENAILS	(3) TOENAILS*
DOUBLE STUD	NAILS @ 24" o.c.	NAILS @ 16" o.c.
DOUBLE TOP PLATE	NAILS @ 24" o.c.	NAILS @ 16" o.c.
DOUBLE TOP PLATE LAP SPLICE	(4) NAILS IN LAPPED AREA	(1) NAILS IN LAPPED AREA
TOP PLATE LAP @ CORNERS & INTERSECTING WALLS	(2) NAILS	(2) NAILS
RAFTER/TRUSS TO TOP PLATE	(3) TOENAILS + (1) SIMPSON H25T	(3) TOENAILS + (1) SIMPSON H25T
GAB. END TRUSS TO DBL. TOP PL.	TOENAILS @ 8" o.c.	TOENAILS @ 6" o.c.
R.T. w/ HEEL HT. 9 1/4" TO 12"	2x10 BLK EVERY 3RD BAY FASTENED TO DBL. TOP PLATE w/ TOENAILS @ 6" o.c.	2x10 BLK EVERY 3RD BAY FASTENED TO DBL. TOP PLATE w/ TOENAILS @ 4" o.c.
R.T. w/ HEEL HT. 12" TO 16"	2x12 BLK EVERY 3RD BAY FASTENED TO DBL. TOP PLATE w/ TOENAILS @ 6" o.c.	2x12 BLK EVERY 3RD BAY FASTENED TO DBL. TOP PLATE w/ TOENAILS @ 4" o.c.
R.T. w/ HEEL HT. UP TO 24"	LAP WALL SHTG. w/ DBL. TOP PL. & INSTALL ON TRUSS VERT. - FASTEN w/ NAILS @ 6" o.c.	LAP WALL SHTG. w/ DBL. TOP PL. & INSTALL ON TRUSS VERT. - FASTEN w/ NAILS @ 4" o.c.*
R.T. w/ HEEL HT. 24" TO 48"	LAP WALL SHTG. w/ DBL. TOP PL. & INSTALL ON TRUSS VERT. - FASTEN w/ NAILS @ 6" o.c. PROVIDE 2x BLK @ EA. BAY AT TOP OF HEEL	LAP WALL SHTG. w/ DBL. TOP PL. & INSTALL ON TRUSS VERT. - FASTEN w/ NAILS @ 6" o.c. PROVIDE 2x BLK @ EA. BAY AT TOP OF HEEL*
WALL TO FOUNDATION FASTENED PER SHEAR WALL	WALL SHTG. LAP w/ SILL PL. & FASTENING SPEC.	
* 2 1/2"x0.113 IS AN ACCEPTABLE ALTERNATIVE TO A 3"x0.120", SAME SPACING OR NUMBER OF NAILS. (ONLY ACCEPTABLE WHERE * ARE SHOWN)		

VENEER LINTEL SCHEDULE		
SPAN (MAX)	HEIGHT OF VENEER ABOVE LINTEL	STEEL ANGLE SIZE
3'-0"	20 FT. MAX	L3"x3"x 1/4"
6'-0"	3 FT. MAX	L3"x3"x 1/4"
	12 FT. MAX	L4"x3"x 1/4"
8'-0"	20 FT. MAX	L5"x3 1/2"x 3/8"
	3 FT. MAX	L4"x4"x 1/4" *
	12 FT. MAX	L5"x3 1/2"x 3/8"
9'-6"	16 FT. MAX	L6"x3 1/2"x 3/8"
	12 FT. MAX	L6"x3 1/2"x 3/8"
16'-0"	2 FT. MAX	L7"x4"x 1/2" **
	3 FT. MAX	L8"x4"x 1/2" **

ALL LINTELS:
- SHALL SUPPORT 2 3/8" - 3 1/2" VENEER w/ 40 psf MAXIMUM WEIGHT.
< 16" SHALL HAVE 4" MIN. BEARING
> 16" SHALL HAVE 8" MIN. BEARING
< 16" SHALL NOT BE FASTENED BACK TO HEADER.
> 16" SHALL BE FASTENED BACK TO MOOD
HEADER IN WALL @ 48" o.c. w/ 1/2" DIA. x 3 1/2" LONG LAG SCREWS IN 2" LONG VERTICALLY SLOTTED HOLES.
- MAX. VENEER HT. APPLIES TO ANY PORTION OF BRICK OVER THE OPENING.
- ALL LINTELS SHALL BE LONG LEG VERTICAL.
- WHEN SUPPORTING VENEER < 3" WIDE THE EXTERIOR TOE OF THE HORIZONTAL LEG MAY BE CUT IN THE FIELD TO BE 3 1/4" WIDE OVER THE BEARING LENGTH ONLY. THIS IS TO ALLOW FOR MORTAR JOINT FINISHING.
- SEE STRUCTURAL PLANS FOR ANY LINTEL CONDITION NOT ENCOMPASSED BY THE ABOVE PARAMETERS.
* FOR QUEEN VENEER USE L4"x3"x 1/4".
** FOR 3 1/2" VENEER ONLY. SEE PLAN FOR VENEER SUPPORT IF VENEER < 3 1/2" THICK.

M&K STD. - MAY 2016

HOLD-DOWN SCHEDULE	
SYMBOL	SPECIFICATION
▶ HD-1	SIMPSON HTT4 HOLD-DOWN *
▶ HD-2	SIMPSON CS16 STRAP (14" MIN. END LENGTH)
* UTILIZE S836x24 ANCHOR BOLT w/ 18" MIN. EMBEDMENT INTO CONCRETE. INSTALL PER MANUF. RECOMMENDATIONS. ALTERNATE TO S836x24 ANCHOR BOLT SPECIFICATION INTO CONCRETE: UTILIZE SIMPSON "SET" EPOXY SYSTEM TO FASTEN 3/8" THREADED ROD INTO CONCRETE FOUNDATION. PROVIDE 8" MIN. EMBEDMENT INTO CONCRETE. INSTALL PER MANUF. RECOMMENDATIONS. DO NOT LOCATE ANCHORS WITHIN 1 3/4" OF EDGE OF FOUNDATION.	

GENERAL STRUCTURAL NOTES	
FOUNDATION	
• DESIGN IS BASED ON 2018 NORTH CAROLINA STATE RESIDENTIAL CODE.	
• FOOTING DESIGN - 2,000 PSF ALLOWABLE SOIL BEARING PRESSURE IS ASSUMED. BUILDER/CONTRACTOR MUST VERIFY.	
• FASTEN 2x4/6 SILL PLATES TO CONC. FND WITH A MINIMUM OF 2 ANCHORS PER PLATE, 12" MAX. FROM PLATE ENDS - UTILIZING: • 1/2" DIA. ANCHOR BOLTS @ 6'-0" O.C. w/ 1" MIN. EMBEDMENT OR SIMPSON MASA ANCHORS @ 6'-0" O.C. • SIMPSON STRONG-BOLT 2 WEDGE ANCHOR (STB2-50T00 - 1/2" Ø x 7") MAY BE USED IN PLACE OF ANCHOR BOLTS	
• ALL LUMBER EXPOSED TO WEATHER OR IN CONTACT w/ PERIMETER FOUNDATION SHALL BE PRESERVATIVE TREATED SOUTHERN PINE #2.	
• BUILDER TO VERIFY CORROSION-RESISTANCE COMPATIBILITY OF HARDWARE & FASTENERS IN CONTACT w/ PRESERVATIVE-TREATED WOOD. CONTACT LUMBER & HARDWARE SUPPLIERS TO COORD.	
• FOUNDATION WALLS & FOOTINGS SHALL BE PLAIN CONCRETE, U.N.O.	
• CONCRETE DESIGN BASED ON ACI 318. CONCRETE SHALL ATTAIN THE FOLLOWING MIN. COMPRESSIVE STRENGTHS IN 28 DAYS, U.N.O.: f'c = 3,000 psi: FOUNDATION WALLS 2,500 psi: FOOTINGS & INTERIOR SLABS ON GRADE 3,000 psi: GARAGE & EXTERIOR SLABS ON GRADE fy = 60,000 psi	
• TYPICAL REINFORCEMENT DETAILS: PROVIDE 3" MIN. CLEAR COVER WHERE CAST AGAINST EARTH. 1 1/2" MIN. CLEAR COVER AGAINST FORMS. LAP ALL REBAR 48 BAR DIAMETERS MIN. (24" FOR #4 BARS) & BEND BARS AND LAP AT CORNERS. PROVIDE 6" HOOK INTO SUPPORTING FOOTINGS WHEN FOOTINGS INTERSECT.	
• ALL CONCRETE EXPOSED TO THE WEATHER SHALL NOT HAVE LESS THAN 5% OR MORE THAN 1% AIR ENTRAINMENT.	
• ALL FOOTINGS SHALL BEAR BELOW FROST LINE (TYP.) OR 12" MIN IN REGIONS WHERE CODE FROST DEPTH IS NOT APPLICABLE. CONSULT SOILS REPORT OR BUILDING DEPT. FOR MINIMUM DEPTH BELOW GRADE.	
• FOOTINGS AND SLABS ON GRADE SHALL BEAR ON VIRGIN SOIL OR 15% COMPACTED FILL.	
• PROVIDE CONTROL JOINTS AT ALL INSIDE CORNERS OF SLAB EDGES, AND OTHER LOCATIONS WHERE SLAB CRACKS ARE LIKELY TO DEVELOP. • JOINTS SHALL BE LOCATED @ 10'-0" O.C. (RECOMMENDED) OR 15'-0" O.C. (MAXIMUM) • JOINT GRID PATTERN SHALL BE AS CLOSE TO SQUARES AS POSSIBLE (1:1 RATIO), WITH A MAXIMUM OF 1:1.5 RATIO • CONTROL JOINTS SHALL NOT BE INSTALLED IN STRUCTURAL SLABS	
• DIMENSIONS BY OTHERS, BUILDER TO VERIFY.	
• BUILDER TO PROVIDE SUBTERRANEAN TERMITE PROTECTION MEETING THE REQUIREMENTS OF R318 OR LOCAL CODE REQUIREMENTS	
• CRAWLSPACE WALLS SHALL BE BRACED, PRIOR TO BACKFILLING, BY EITHER ADEQUATE TEMPORARY BRACING OR INSTALLATION OF FIRST FLOOR DECK.	
• CRAWLSPACE WALL DESIGN IS BASED ON BACKFILL SOIL CLASSIFICATIONS OF GM, GP, SM, SP (30 pcf) OR GM, GC, SM, SM-SC, ML (45 pcf), IF SC, ML-GC, OR CL (60 pcf) SOIL IS ENCOUNTERED ON SITE, CONTACT MULHERN & KULP FOR FURTHER EVALUATION OF FOUNDATION DESIGN.	
• CONCRETE MASONRY UNITS (CMU) SHALL BE ASTM C40 WITH A MIN. COMPRESSIVE STRENGTH OF 1900 psi (Fm=1500 psi). MORTAR SHALL BE ASTM C270, TYPE S. CMU DESIGN PER ACI 530 & 530.1.	
• CMU FOUNDATION WALLS SHALL HAVE "DUR-O-WALL" HORIZONTAL JOINT REINFORCEMENT (OR EQUAL) - 4 GA. MINIMUM @ 16" O.C.	
• PROVIDE 2x8 x 16" LONG P.T. PLATE ON TOP OF ALL CRAWL SPACE PIERS. TOP COURSE OF PIERS SHALL BE SOLID MASONRY OR FILLED SOLID.	
• PROVIDE 2x6 P.T. PLATE ON INTERIOR CRAWL SPACE WALLS, FASTENED PER ANCHORAGE SPECIFICATION NOTED ABOVE.	
• BASEMENT FOUNDATION WALL DESIGN BASED ON: • 10' HEIGHT - TALLER WALLS MUST BE ENGINEERED. NOMINAL WIDTH (8" FOR 8" THICK WALL).	
• BASEMENT WALL DESIGN IS BASED ON 45 PCF.	
• BASEMENT WALLS SHALL BE BRACED, PRIOR TO BACKFILLING, BY ADEQUATE TEMPORARY BRACING OR INSTALL 1st FLOOR DECK.	
• PROVIDE (2) #5 BARS AROUND ALL SIDES OF OPENINGS IN CONCRETE BSMT. FND. WALL WITH 2" CLEAR. REINFORCEMENT SHALL EXTEND 12" PAST CORNER OF OPENING IN ALL DIRECTIONS. • FOR OPENINGS UP TO 36", PROVIDE MINIMUM 10" CONCRETE DEPTH OVER OPENING OR (3)2x10 w/ (2)2x6 JACK STUDS, U.N.O. • LARGER OPENINGS SHALL BE PER PLAN.	
• PROVIDE CONTROL JOINTS AT ALL INSIDE CORNERS OF SLAB EDGES, AND OTHER LOCATIONS WHERE SLAB CRACKS ARE LIKELY TO DEVELOP. • JOINTS SHALL BE LOCATED @ 10'-0" O.C. (RECOMMENDED) OR 15'-0" O.C. (MAXIMUM) • JOINT GRID PATTERN SHALL BE AS CLOSE TO SQUARES AS POSSIBLE (1:1 RATIO), WITH A MAXIMUM OF 1:1.5 RATIO • CONTROL JOINTS SHALL NOT BE INSTALLED IN STRUCTURAL SLABS	
M&KO - MAY 2017	

EXTERIOR & SHEAR WALL SHEATHING SPECIFICATIONS	
THIS MODEL HAS BEEN DESIGNED TO RESIST LATERAL FORCES RESULTING FROM: 115 MPH WIND IN 2018 NC5BC:RC (115 MPH WIND SPEED IN ASCE 7-10 WIND MAP, PER NC5BC R301.2.1.1) EXP. B & SEISMIC CAT. C.	
THE ENGINEERED DESIGN WAS COMPLETED PER 2015 IBC (SECTION 1609) & ASCE 7-10, AS PERMITTED BY R301.1.3 OF THE 2018 NC5BC.	
DESIGN WIND UPLIFT LOADS HAVE BEEN CALCULATED UTILIZING ASCE 7-10 (ACCEPTED ENGINEERING PRACTICE) AS ALLOWED PER 2018 NC5BC:RC SECTION R802.II.1.1. THIS MODEL HAS BEEN DETAILED WHERE REQUIRED & ENGINEERED TO RESIST THE WIND UPLIFT LOAD PATH PER SECTIONS R602.3.5 & R802.II.	
EXT. WALL SHEATHING SPECIFICATION	
• 7/16" OSB OR 15/32" PLYWOOD:  FASTEN SHEATHING w/ 2 3/8"x0.113 NAILS @ 6" O.C. AT EDGES & @ 12" O.C. IN THE PANEL FIELD. (TYP. U.N.O.)	
• ALL SHEATHING PANELS SHALL BE ORIENTED VERTICALLY (LONG DIRECTION PARALLEL TO STUDS) AND INSTALLED FULL HEIGHT OF SHEAR WALL - OR 2x HORIZONTAL BLOCKING SHALL BE PROVIDED TO SUPPORT ALL UNSUPPORTED PANEL EDGES & EDGE FASTENING.	
• ALL EXT. WALLS SHALL BE CONTINUOUSLY SHEATHED AND ARE CONSIDERED SHEAR WALLS.	
3" O.C. EDGE NAILING 	
• AT DESIGNATED AREAS - FASTEN PANEL EDGES OF WOOD STRUCTURAL WALL SHEATHING TO FRAMING w/ 2 3/8" x 0.113" NAILS @ 3" O.C. NO STAPLE ALTERNATIVE AVAILABLE AT THIS SPEC. ALL SHEATHING PANELS SHALL BE ORIENTED VERTICALLY (LONG DIRECTION PARALLEL TO STUDS) AND INSTALLED FULL HEIGHT OF SHEAR WALL - OR 2x HORIZONTAL BLOCKING SHALL BE PROVIDED TO SUPPORT UNSUPPORTED PANEL EDGES AND 3" O.C. EDGE FASTENING.	
NOTES	
• SEE CONNECTION SPECIFICATIONS CHART FOR STANDARD SHEAR TRANSFER DETAILING. IF ADDITIONAL CAPACITY IS REQUIRED BY DESIGN, IT WILL BE SPECIFICALLY NOTED ON PLAN.	
• REFER TO DETAIL SHEET.	
• "NUMBERED" DETAILS ARE REFERENCED ON PLAN.	
• DESIGN ASSUMES 16" O.C. MAX. STUD SPACING, U.N.O.	
• LAP SHEATHING @ 1ST & 2ND FLOOR DECKS PER TYPICAL DETAILS PROVIDED.	
• DESIGN ASSUMES ALL INTERIOR SHEAR WALLS AND EXTERIOR WALLS ARE CONTINUOUS SHEATHED ABOVE AND BELOW OPENINGS.	
• WHERE PANELS ARE APPLIED TO BOTH FACES OF WALL, PANEL JOINTS SHALL BE OFFSET TO FALL ON DIFFERENT FRAMING MEMBERS.	
• ALL STRUCTURAL PANELS ARE TO BE DIRECTLY APPLIED TO STUD FRAMING.	
• PRE-MANUFACTURED PANELIZED WALLS: FASTEN TOGETHER END STUDS OF WALL PANELS SHEATHED w/ OSB OR PLYWOOD AS FOLLOWS P1 SHEAR PANELS - 3" x 0.120" NAILS @ 6" o.c. P3 SHEAR PANELS - 3" x 0.120" NAILS @ 4" o.c.	
- - - - - INDICATES LOCATION AND EXTENT OF SHEARWALL WHICH REQUIRES SHEATHING AND/OR FASTENING SPECIFICATIONS BEYOND THAT OF STANDARD CONSTRUCTION	
M&KO - MAY 2017	

GENERAL STRUCTURAL NOTES	
FLOOR FRAMING	
• TRUSSES SHALL BE DESIGNED BY MANUF. TO MEET OR EXCEED L/480 LIVE LOAD DEFLECTION CRITERIA. (EXCLUDES STONE/MARBLE OR WET BED CONSTRUCTED FLOORS - CONTACT MKK FOR EXCLUDED FLOOR DESIGNS)	
• PER THE GUIDELINES OF THE TILE COUNCIL OF NORTH AMERICA (TCNA HANDBOOK), IT SHALL BE THE FLOOR FINISH INSTALLER'S RESPONSIBILITY TO VERIFY THAT THE FINISHES TO BE INSTALLED MATCH THE DESIGN CRITERIA NOTED ABOVE (UNDER "DESIGN LOADS") .	
• METAL HANGERS SHALL BE SPECIFIED BY MANUFACTURER, U.N.O.	
• TRUSS SHOP DWGS. SHALL BE SUBMITTED TO ARCH. & ENG. FOR REVIEW AND APPROVAL PRIOR TO FABRICATION OR DELIVERY.	
• FLOOR SHEATHING SHALL BE 23/32" A.P.A. RATED STURD-FLOOR® 24" O.C., EXPOSURE 1 (OR APPROVED EQUAL) WITH TONGUE AND GROOVE EDGES. FASTEN TO FRAMING MEMBERS w/ GLUE AND: - 2 1/2" x 0.131" NAILS @ 6" o.c. @ PANEL EDGES & @ 12" o.c. FIELD. - 2 3/8" x 0.120" NAILS @ 4" O.C. @ PANEL EDGES & @ 8" O.C. FIELD. - 2 3/8" x 0.113" NAILS @ 3" O.C. @ PANEL EDGES & @ 6" O.C. IN FIELD.	
• PROVIDE 1 1/4" RIM BOARD @ ALL DECK LEDGER LOCATIONS. SEE PLANS OR DETAILS FOR LEDGER CONNECTION.	
ROOF FRAMING	
• ROOF SHEATHING SHALL BE 7/16" A.P.A. RATED SHEATHING 24/16 EXPOSURE 1 (OR APPROVED EQUAL). FASTEN TO FRAMING MEMBERS - w/ 2 1/2" x 0.131" NAILS @ 6" o.c. @ PANEL EDGES & @ 12" O.C. FIELD. - w/ 2 3/8" x 0.120" NAILS @ 4" o.c. @ PANEL EDGES & @ 8" O.C. FIELD. - w/ 2 3/8" x 0.113" NAILS @ 3" o.c. @ PANEL EDGES & @ 6" O.C. FIELD.	
• WITHIN 48" OF ALL ROOF EDGES, RIDGES, & HIPs FASTEN ROOF SHEATHING FIELDS PER EDGE NAILING SPEC.	
• FASTEN EACH ROOF TRUSS TO TOP PLATE w/ SIMPSON H25A HURRICANE CLIP (OR APPROVED EQUAL) @ ALL BEARING POINTS. CLIPS MUST BE INSTALLED ON EXTERIOR FACE OF EXTERIOR WALLS OR THE SAME SIDE AS THE SHEAR WALL SHEATHING.	
• ALL ROOF GIRDER TRUSSES AND FLUSH BEAMS WITHIN THE ROOF SYSTEM SHALL BE FASTENED TO THE DOUBLE TOP PLATES AND POST SUPPORT w/ (2) SIMPSON H25A CLIPS OR APPR. EQUAL (TYP. U.N.O. ON PLANS)	
• TRUSS ALL VALLEY SETS. FASTEN TO TRUSS BELOW w/ SIMPSON H25A TIES AT EACH END AND AT EACH TRUSS BETWEEN.	
• METAL HANGERS SHALL BE SPECIFIED BY THE MANUFACTURER, U.N.O.	
• ROOF TRUSS SHOP DWGS. SHALL BE SUBMITTED TO ARCH & ENG. FOR REVIEW AND APPROVAL PRIOR TO FABRICATION OR DELIVERY.	
• ERECT AND INSTALL ROOF TRUSSES PER MTCA & TP15 BCSI 1 "GUIDE TO GOOD PRACTICE FOR HANDLING, INSTALLING & BRACING OF METAL PLATE CONNECTED WOOD TRUSSES."	
• SUPPORT SHORT SPAN ROOF TRUSSES w/2x4 LEDGER FASTENED TO FRAMING w/ (2) 3" x 0.120" NAILS @ 16" O.C. (UP TO 1" SPAN).	
M&KO - MAY 2017	

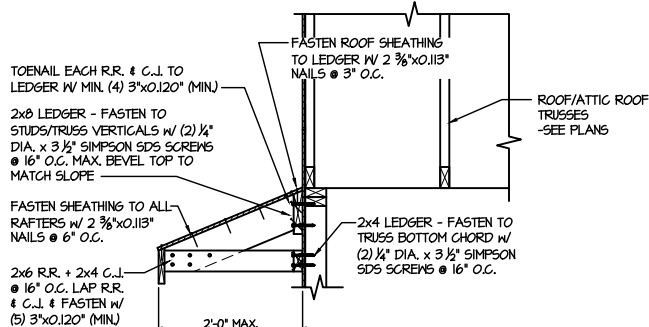
ADDITIONAL NOTES FOR TRUSS & I-JOIST MANUFACTURER	
ROOF TRUSS, FLOOR TRUSS AND ENGINEERED JOISTS SHALL BE DESIGNED TO MEET THE DIFFERENTIAL DEFLECTION CRITERIA BELOW, UNLESS NOTED OTHERWISE ON PLAN. MULHERN & KULP CANNOT BE HELD RESPONSIBLE FOR ANY STRUCTURAL ISSUES RELATED TO ANY BUILDING COMPONENT IF COMPONENT SHOP DRAWINGS ARE NOT SUBMITTED TO MKK FOR REVIEW PRIOR TO FABRICATION, DELIVERY, OR INSTALLATION.	
TRUSSES/JOISTS SHALL BE DESIGNED SO THAT DIFFERENTIAL DEFLECTION BETWEEN ADJACENT PARALLEL TRUSSES/JOISTS OR GIRDER TRUSSES/FLUSH BEAMS DO NOT EXCEED THE FOLLOWING: A. ROOF TRUSSES: 1/4" DEAD LOAD B. FLOOR TRUSSES, ATTIC TRUSSES, & I-JOISTS: 1/8" DEAD LOAD C. FLOOR TRUSSES & ATTIC TRUSSES ADJACENT TO FLOOR FRAMING BY OTHERS: LIMIT ABSOLUTE TRUSS DEFLECTION TO 3/16" DEAD LOAD. (NOT DIFFERENTIAL DEFLECTION)	

LIST OF ABBREVIATIONS			
• B.F.	BALLOON-FRAMED	• INT.	INTERIOR
• BM.	BEAM	• J	JACK STUD
• BOT.	BOTTOM	• J.T.	JACK TRUSS
• BRG.	BEARING	• K	KING STUD
• B.J.A.	BEARING WALL ABOVE	• MANUF.	MANUFACTURER
• CANT'D	CANTILEVERED	• MAX.	MAXIMUM
• CONC.	CONCRETE	• MIN.	MINIMUM
• CONT.	CONTINUOUS	• N.T.S.	NOT TO SCALE
• DBL.	DOUBLE	• OPT.	OPTIONAL
• DIM.	DIMENSION	• P.A.	POST ABOVE
• EA.	EACH	• P.T.	PRESSURE TREATED
• EQ.	EQUAL	• PKT	POCKET
• EXT.	EXTERIOR	• REQ'D	REQUIRED
• E.J.N.	EACH WAY	• R.T.	RUOF TRUSS
• F.T.	FLOOR TRUSS	• SCHED.	SCHEDULE
• FND.	FOUNDATION	• SIM.	SIMILAR
• FTG.	FOOTING	• STRUCT.	STRUCTURAL
• G.T.	GIRDER TRUSS	• T.O.F.	TOP OF FOOTING
• HD	HOLD-DOWN	• TYP.	TYPICAL
• HDR.	HEADER		

GENERAL STRUCTURAL NOTES	
• DESIGN IS BASED ON 2018 NORTH CAROLINA STATE RESIDENTIAL CODE.	
• WOOD FRAME ENGINEERING IS BASED ON NDS, "NATIONAL DESIGN SPECIFICATION FOR WOOD CONSTRUCTION" - LATEST EDITION.	
• MODEL IS CONSIDERED AS "FULLY ENCLOSED". OPENING PROTECTION PER BUILDER (MINIMUM STRUCTURAL PANELS PER CODE)	
• DESIGN LOADS: ROOF LIVE = 20 PSF, DEAD = 17 PSF ATTIC = 20 PSF AT HT. > 42' LOAD DURATION FACTOR = 1.25	
FLOOR	LIVE = 40 PSF (30 PSF AT SLEEPING AREAS) DEAD (TRUSS) = 15 PSF (10 PSF T.C., 5 PSF B.C.) (ADD'L 10 PSF AT TILE)
WIND	115 MPH, EXPOSURE B
GENERAL FRAMING	
• ALL TYP. NAIL FASTENER REQUIREMENTS ARE NOTED IN STANDARD CONNECTIONS TABLE (IRC TABLE R602.3.1) OR ON PLANS. ALL NAILS SPECIFIED ARE MIN DIAMETER AND LENGTH REQUIRED FOR CONNECTION. ALL HANGER NAILS SHALL BE INSTALLED PER MANUFACTURER'S REQUIREMENTS FOR MAX CHARTED CAPACITY. NOTE: HANGERS USE COMMON NAIL DIAMETERS NOT TYPICAL FRAMING GUN NAILS.	
• EXT. & INT. BRG./SHEAR WALLS SHALL BE 2x4 OR 2x6 (AS SHOWN ON PLANS) @ 16" O.C. SFP/SP STUD GRADE LUMBER, OR BETTER, U.N.O. • WALLS OVER 12' TALL SHALL BE PER PLAN.	
• ALL INTERIOR BEARING WALLS ARE ASSUMED TO BE SHEATHED w/ GYP WALL BOARD (ONE SIDE MIN) OR PROVIDE MID HT. BLOCKING.	
• ALL HEADERS, BEAMS & OTHER STRUCTURAL MEMBERS SHALL BE SPRUCE-PINE-FIR #2 (SPF) OR SOUTHERN PINE #2 (SP) LUMBER, OR BETTER. SUPPORT ALL HEADERS/ BEAMS w/ (1)2x JACK STUD & (1)2x KING STUD, MINIMUM. - THE NUMBER OF STUDS SPECIFIED AT A SUPPORT INDICATES THE NUMBER OF JACK STUDS REQUIRED, U.N.O..	
• ALL NON-BEARING INTERIOR STUD WALLS SHALL BE CONSTRUCTED WITH 2x STUD GRADE MEMBERS SPACED @ 16" O.C. (MAX. U.N.O.) • SEE "NON-BEARING HEADER SCHEDULE" HEADER SIZES IN NON-LOAD BEARING WALLS	
• ALL FRAMING LUMBER SHALL BE DRIED TO 15% MC (KD-15).	
• ENGINEERED LUMBER BEAMS TO MEET OR EXCEED THE FOLLOWING: • 'LVL' - F=2600 psi; Fv=285 psi; E=2.9x10⁶ psi	
• ENGINEERED LUMBER POSTS TO MEET OR EXCEED THE FOLLOWING: • 'LVL' - F=2400 psi; Fc11=2500 psi; E=1.8x10⁶ psi	
• FOR 2 & 3 PLY BEAMS OF EQUAL 1 3/4" MAX. WIDTH, FASTEN PLIES TOGETHER WITH 3 ROWS OF 3"x0.120" NAILS @ 8" O/C OR 2 ROWS 1/4"x3/8" SIMPSON SDS SCREWS (OR 3/8" TRUSSLOK SCREWS) @ 16" O/C. ALT. FASTENING SPEC FOR 3 PLY BEAMS ONLY: FASTEN PLIES TOGETHER WITH 2 ROWS OF 1/2" DIA. THRU BOLTS @ 16" O.C. USE A MINIMUM OF 4 ROWS (NAILS/SCREWS) OR 3 ROWS (BOLTS) FOR BEAM DEPTHS OF 14" OR GREATER. APPLY NAIL/SCREEN FASTENING AT BOTH FACES FOR 3-PLY CONDITION. LOCATE TOP & BOTTOM FASTENERS 2" FROM EDGE. SOLID 3 1/2" OR 5 1/4" BEAMS ARE ACCEPTABLE. USE 2 ROWS OF NAILS FOR 2x6 & 2x8 MEMBERS.	
• FOR 4 PLY BEAMS OF EQUAL 1 3/4" MAX. WIDTH, FASTEN PLIES TOGETHER WITH 3 ROWS OF 1/4"x6" SIMPSON SDS SCREWS (OR 6 3/4" TRUSSLOK SCREWS) @ 16" O/C OR 2 ROWS OF 1/2" DIA. THRU BOLTS @ 16" O.C. USE A MINIMUM OF 4 ROWS (SCREWS) OR 3 ROWS (BOLTS) FOR BEAM DEPTHS OF 14" OR GREATER. APPLY SCREEN FASTENING AT BOTH FACES (ONE SIDE ONLY FOR TRUSSLOK SCREWS). LOCATE TOP AND BOTTOM FASTENERS 2" FROM EDGE. A SOLID 1" BEAM IS ACCEPTABLE.	
• REFER TO IRC FASTENING SCHEDULE TABLE R602.3(1) FOR ALL CONNECTIONS, TYP. U.N.O.	
FASTEN ALL METAL CONNECTORS (I.E. HANGERS, CLIPS, ETC) PER MANUFACTURER'S SPECIFICATIONS FOR MAXIMUM TABLE LOAD VALUE U.N.O.	
PROVIDE SOLID BLOCKING IN FLOOR SYSTEM UNDER ALL POSTS CONTINUOUS TO FND/BEARING. BLOCKING TO MATCH POST ABOVE.	
• BASEMENT INTERIOR BEARING WALLS & EXTERIOR WALK-OUT BASEMENT WALLS SHALL BE 2x6 @ 16" O.C. SFP OR SYP, "STUD" GRADE OR BETTER.	
M&KO - MAY 2017	

QTY	PRODUCT
22	SIMPSON H2.5A CLIP
4	SIMPSON CS16 (26"STRAP)

- ALL NAIL HOLES FILLED
- ALL COUNTS ESTIMATED
- HARDWARE COUNT DOES NOT INCLUDE TRUSS TO TRUSS CONNECTIONS



ALL ELEVS. SIM.
ATTIC OPTION SIM.



Max project number: 192-17022	project mgr: JAK drawn by: AMG issue date: 05-03-19
REVISIONS:	
date: 03/12/2018 drawn by: RAP issue date: 04/12/2018 version: 1	initial: RAP issue date: 04/12/2018 version: 1
ARCH: v.01.00.00.00	



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p 215-846-8001 ▶ [mulhern+kul.com](mailto:muk@mulhern+kul.com)
NC License # C-3825

SO 1.3M

OPTION FRAMING PLANS

ALEXANDRIA II

DETACHED 2-CAR GARAGE
WIND SPEED < 115 MPH NORTH CAROLINA

7/22/22

Seal of the State of North Carolina
Professional Engineer

7/22/22



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NC License # C-3825



M&K project number:
192-17022
project mgr: JAK
drawn by: AMG
issue date: 05-03-19

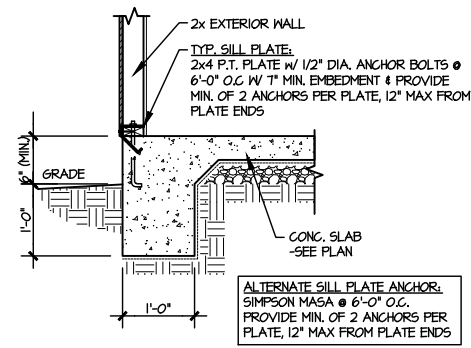
REVISIONS:
date: initial:
02/12/2018 RAP
CHANGE FLOOR TRUS LAYOUT & BEAR
04/11/2018 RAP
UPDATE PLAN 1 SCRIEB PLAN

ARCH: v.01.00.00.00



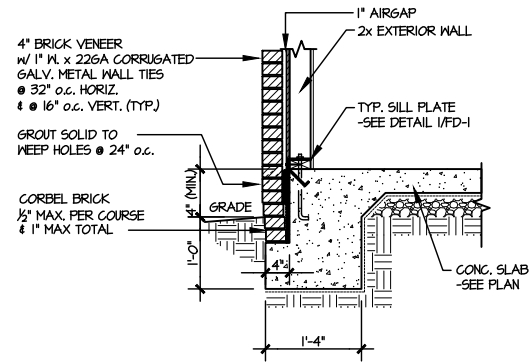
FOUNDATION DETAILS
ALEXANDRIA II
WIND SPEED < 115 MPH NORTH CAROLINA

sheet:
FD-1



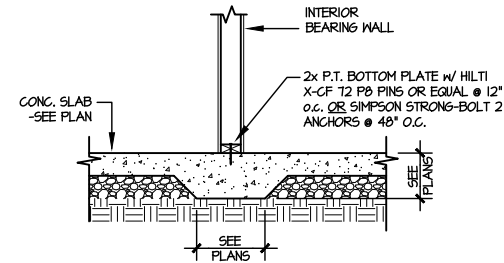
**TYPICAL TURNDOWN
@ EXT. WALL**

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



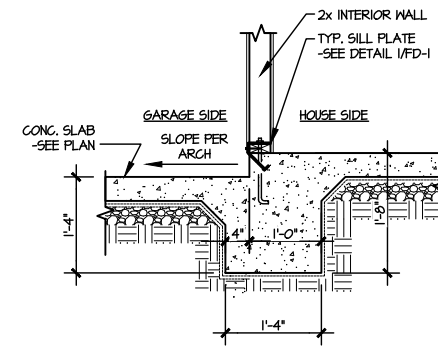
**TYPICAL TURNDOWN
@ EXT. WALL (BRICK)**

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



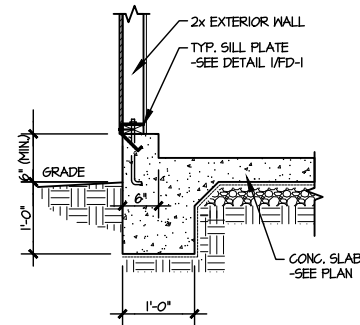
**TYPICAL THICKENED SLAB @
INTERIOR BEARING WALL**

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



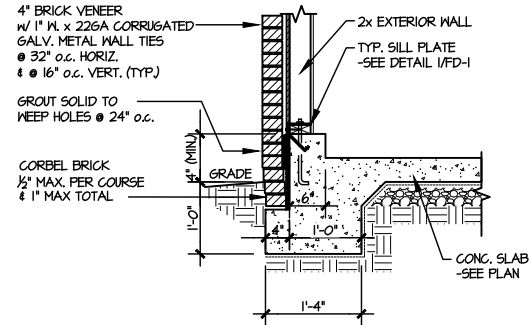
**TYPICAL INT. FOOTING
BETWEEN HOUSE & GARAGE**

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



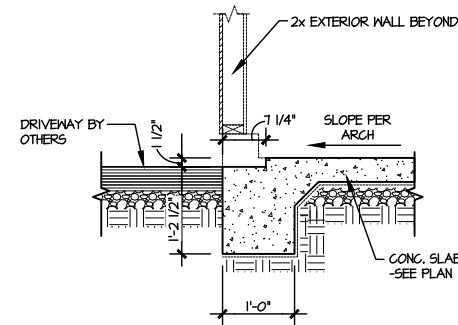
**TYPICAL TURNDOWN
@ EXT. GARAGE WALL**

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



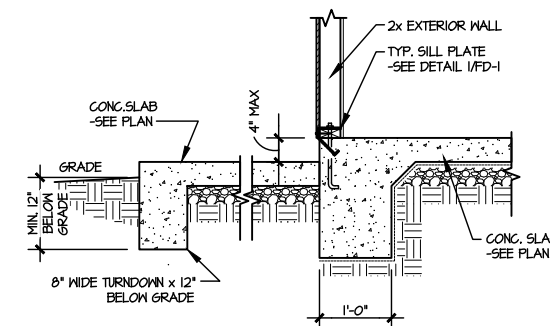
**TYPICAL TURNDOWN
@ EXT. GARAGE WALL (BRICK)**

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



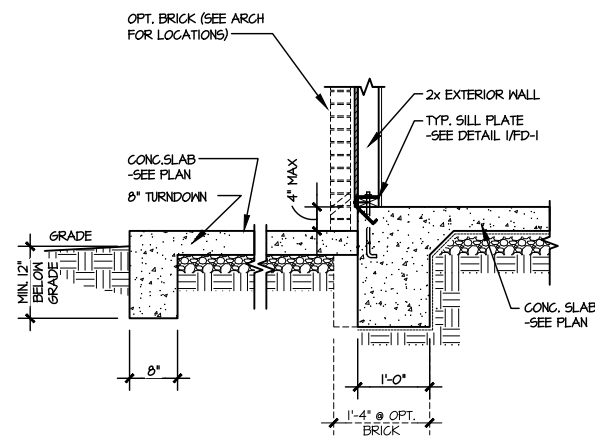
GARAGE OPENING

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



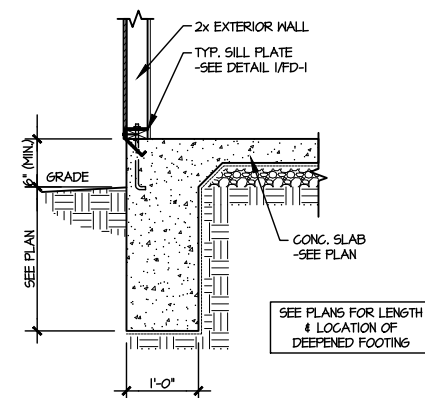
**TYPICAL TURNDOWN
@ PATIO/PORCH**

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



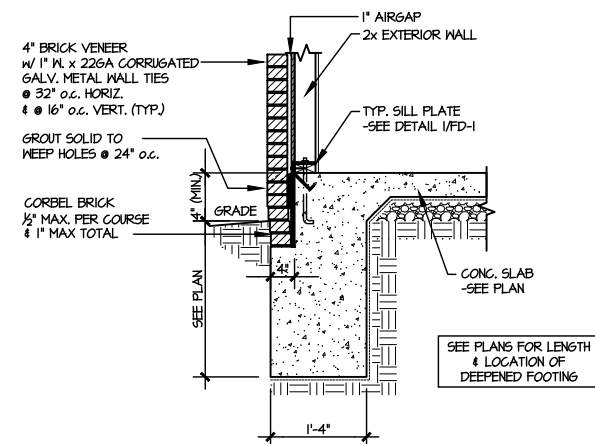
**TYPICAL TURNDOWN @
PATIO/PORCH (BRICK)**

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



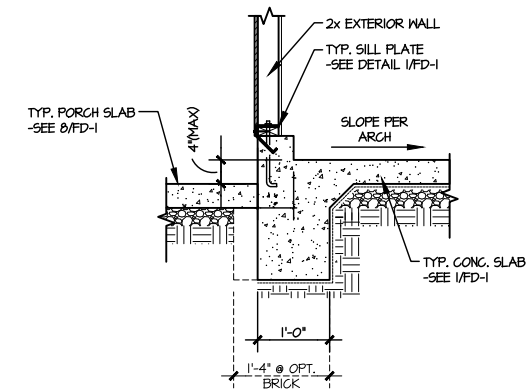
**TYPICAL TURNDOWN w/
DEEPEENED FTG. @ EXT. WALL**

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



**TYPICAL TURNDOWN
@ EXT. WALL (BRICK)**

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

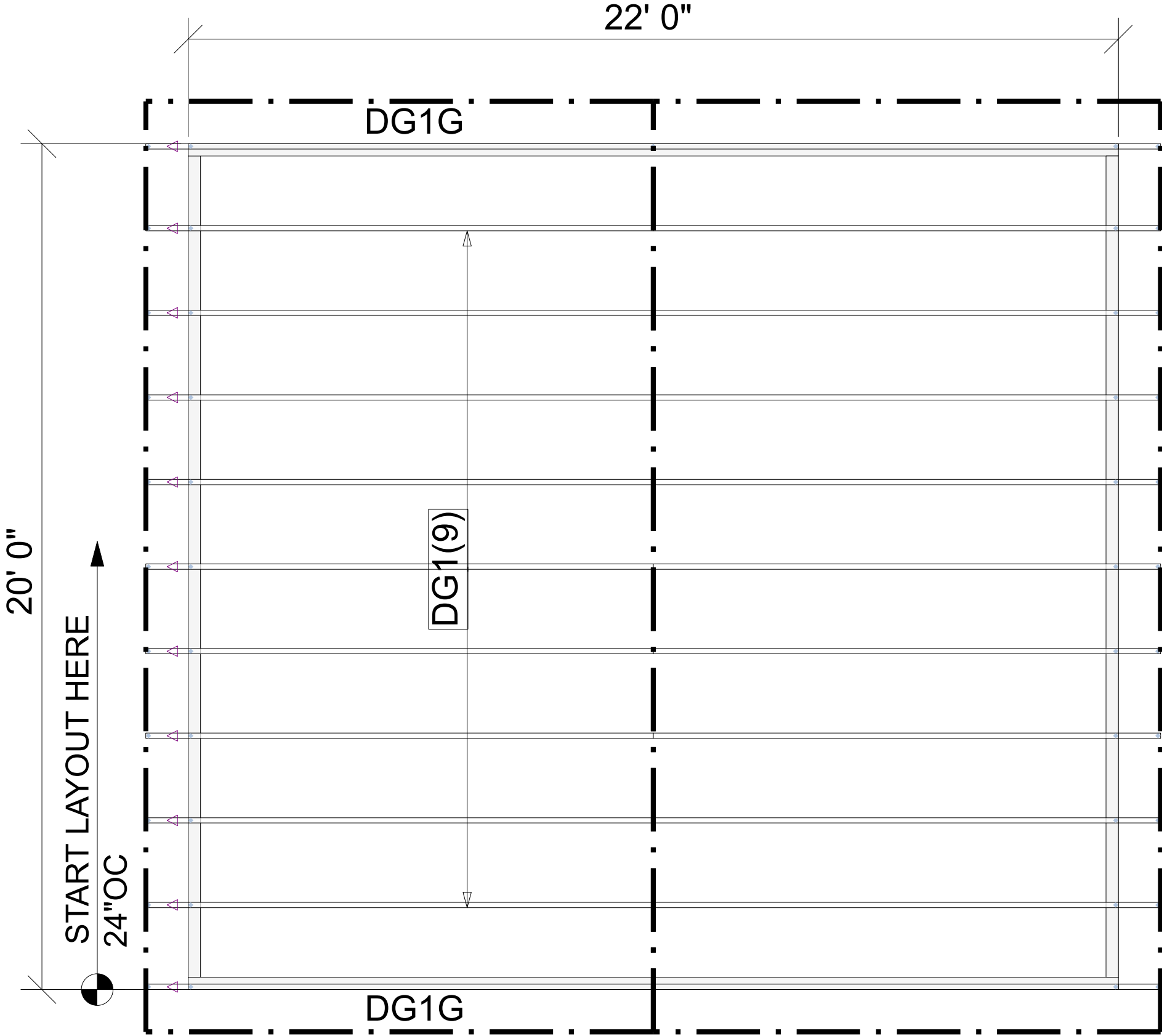


**TYPICAL TURNDOWN @ COVERED
PORCH/ATTACHED GARAGE**

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

THIS IS A TRUSS PLACEMENT DIAGRAM (TPD) ONLY; NOT AN ENGINEERED DOCUMENT. Trusses are designed as individual building components to be incorporated into the building design at the specification of the building designer. See individual truss design drawings (TDD's) for each truss design identified on the TPD. The Contractor is responsible for the temporary bracing of the roof and floor system, and requirements for the permanent restraint/bracing of truss systems may be met by following the methods outlined in ANSI-TPI 1-2014 - 2.3.3. The design of the support structure including but not limited to headers, beams, walls, and columns is also the responsibility of the building designer. For general guidance regarding installation and bracing, consult "Building Component Safety Information" (BCSI) available from the SBC Association (www.sbcassociations.com). It is the responsibility of the General Contractor to verify that the provided component layout matches the final intended construction plans, loading conditions, and use. If they do not, it is the responsibility of the General Contractor to notify UFP and provide plans containing the latest specifications and designs. UFP will not be responsible for plan changes by others after final approval of shop drawings, or for errors or modifications made on-site during construction. DO NOT CUT, NOTCH, DRILL, OR OTHERWISE "REPAIR" MANUFACTURED TRUSSES IN ANY WAY WITHOUT PRIOR WRITTEN AUTHORIZATION BY A LICENSED PROFESSIONAL DESIGNATED BY UFP. The Framing is responsible to verify all dimensions, including adjusting member spacing within tolerances to allow for the drop and rise of plumbing/HVAC, unless noted otherwise. Truss-to-wall connections, if shown, are for uplift only and do not consider lateral loads. All connectors on this project are to be installed per the connector manufacturer's specifications. All connectors shown that are not truss-to-truss are suggestions only and are to be verified by the Building Designer or Engineer of Record for suitability to this particular project. UFP accepts no responsibility for the specific application or suitability of any connector that is not truss-to-truss as they apply to this specific structure.

ROOF PLACEMENT PLAN



△ INDICATES LEFT END OF TRUSS SCALE: N.T.S.

ROOF AREA: 556.56 ft² sqft

RIDGE LINE: 22 ft

VALLEY LINES: 0 ft

HIP LINES: 0 ft

THESE VALUES ARE APPROXIMATE ONLY

REVISIONS		DSN
DATE	DESCRIPTION	
-	-	-
-	-	-
-	-	-
-	-	-
-	-	-
-	-	-

DESIGNER LJP
LAYOUT DATE 01/13/2025
ARCH DATE -
STRUC DATE -

2 CAR DETACHED GRGE

MUNGO HOMES

TRUSS TRAX

UFP CONSTRUCTION

TrussTraxUFP.com

UFP SITE BUILT

A UFP INDUSTRIES COMPANY

Burlington, NC Locust, NC
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