

CONTRACTOR AND BUILDER SHALL REVIEW ENTIRE PLAN TO VERIFY CONFORMANCE WITH ALL CURRENT APPLICABLE CODES IN EFFECT AT TIME OF CONSTRUCTION. BY USING THESE DRAWINGS FOR CONSTRUCTION IT IS UNDERSTOOD THAT CONFORMANCE WITH ALL APPLICABLE CODES IS THE RESPONSIBILITY OF THE BUILDER AND CONTRACTOR.



1 Drone Front



2 Drone Rear

Area Schedule	
Name	Area
Heated	
1st Floor	1624 SF
2nd floor	1544 SF
	3168 SF
Unheated	
Front Porch	100 SF
Garage	443 SF
Rear Porch	160 SF
	703 SF
Under Roof	3871 SF

Sheet List	
Sheet Number	Sheet Name
Pg0	Cover Page
Pg1	Front & Rear Elevations
Pg2	Side Elevations
Pg3	1st Floor Plan
Pg4	2nd Floor Plan
Pg5	Roof Plan
Pg6	Stair Section
Sec-Crawl/Brk	Typical Wall Section

Duke - GL - Elevation A

Cover Page

Lot #:

Job #:

Address:

County:

Last Revision Date:

11-10-23

Sheet #:

Pg0

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① **Front Elevation**
1/8" = 1'-0"



② **Rear Elevation**
1/8" = 1'-0"

Duke - GL - Elevation A

Front & Rear Elevations

Lot #:

Job #:

Address:

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Sheet #:

Pg1

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① Left Elevation
1/8" = 1'-0"



② Right Elevation
1/8" = 1'-0"

Duke - GL - Elevation A

Side Elevations

Lot #:

Job #:

Address:

County:

Last Revision Date:

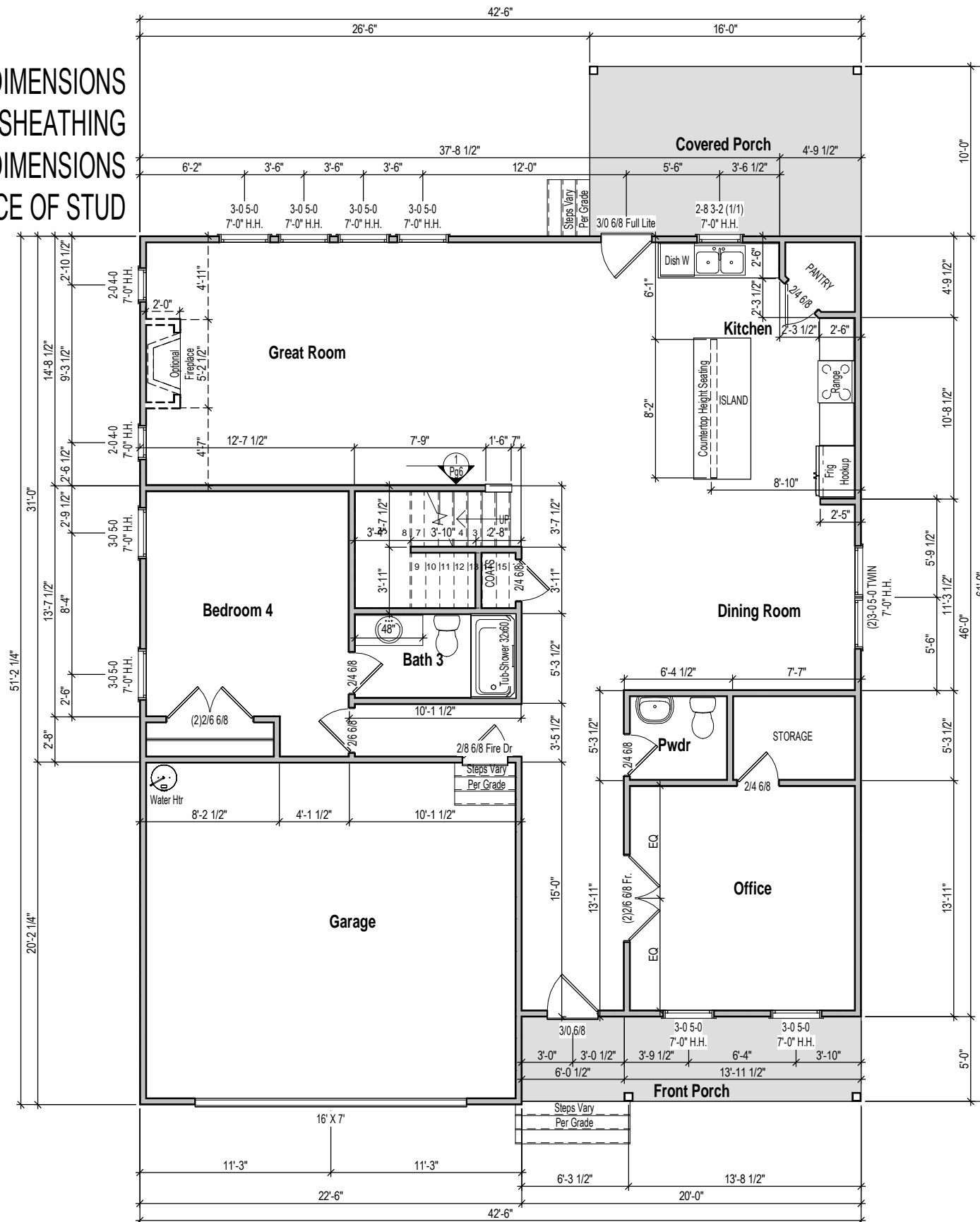
11-10-23

Sheet #:

Pg2

- EXTERIOR WALL DIMENSIONS ARE TO FACE OF SHEATHING
- INTERIOR WALL DIMENSIONS ARE TO FACE OF STUD

Wall Stud Size
 — = 2x4
 // = 2x6



1 1st Floor Plan
 1/8" = 1'-0"



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Duke - GL - Elevation A

1st Floor Plan

Lot #:

Job #:

Address:

County:

Last Revision Date:

11-10-23

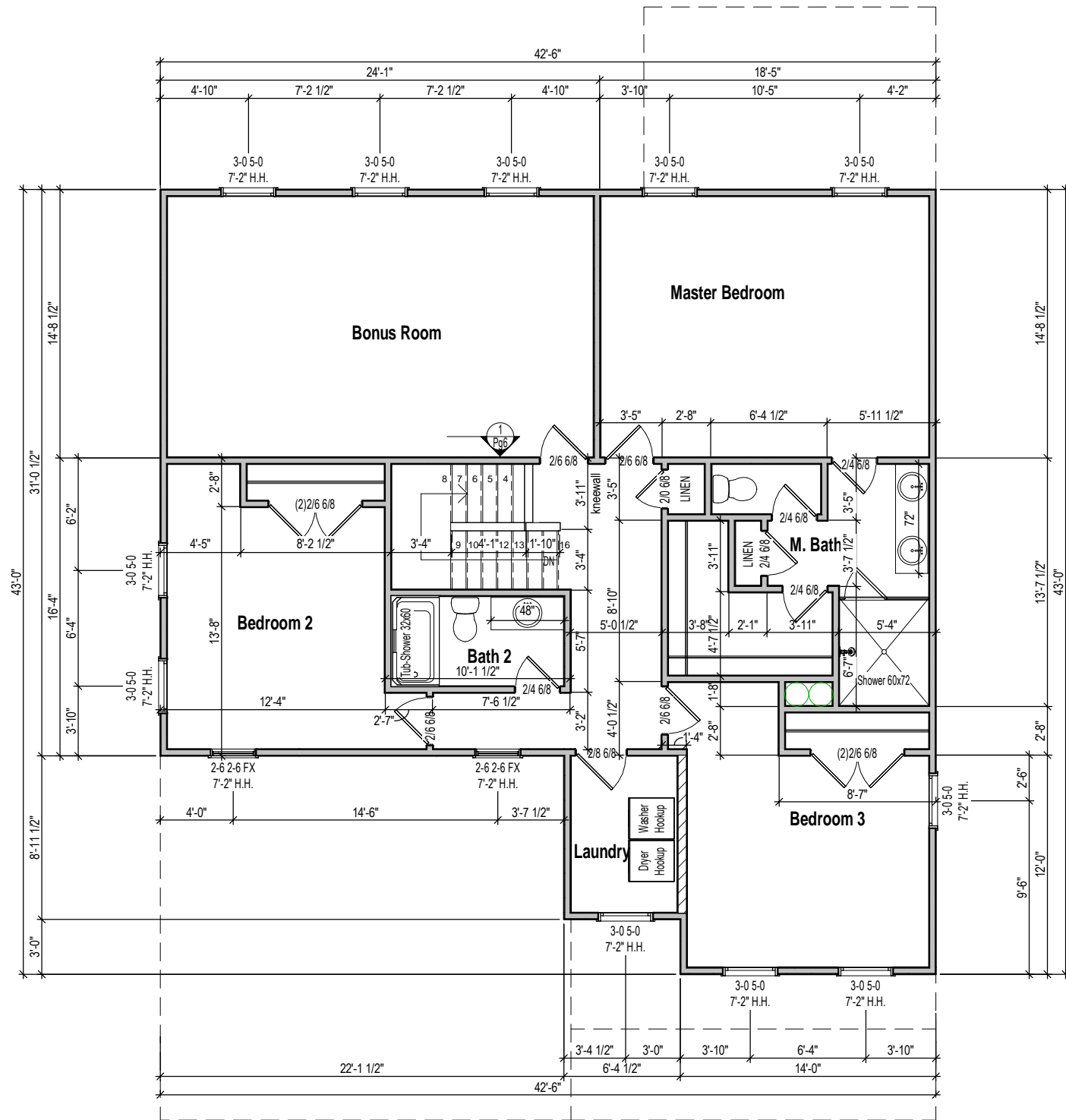
Sheet #:

Pg3

Wall Stud Size

— = 2x4

/// = 2x6



1 2nd Floor Plan
 1/8" = 1'-0"

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Duke - GL - Elevation A

2nd Floor Plan

Lot #:

Job #:

Address:

County:

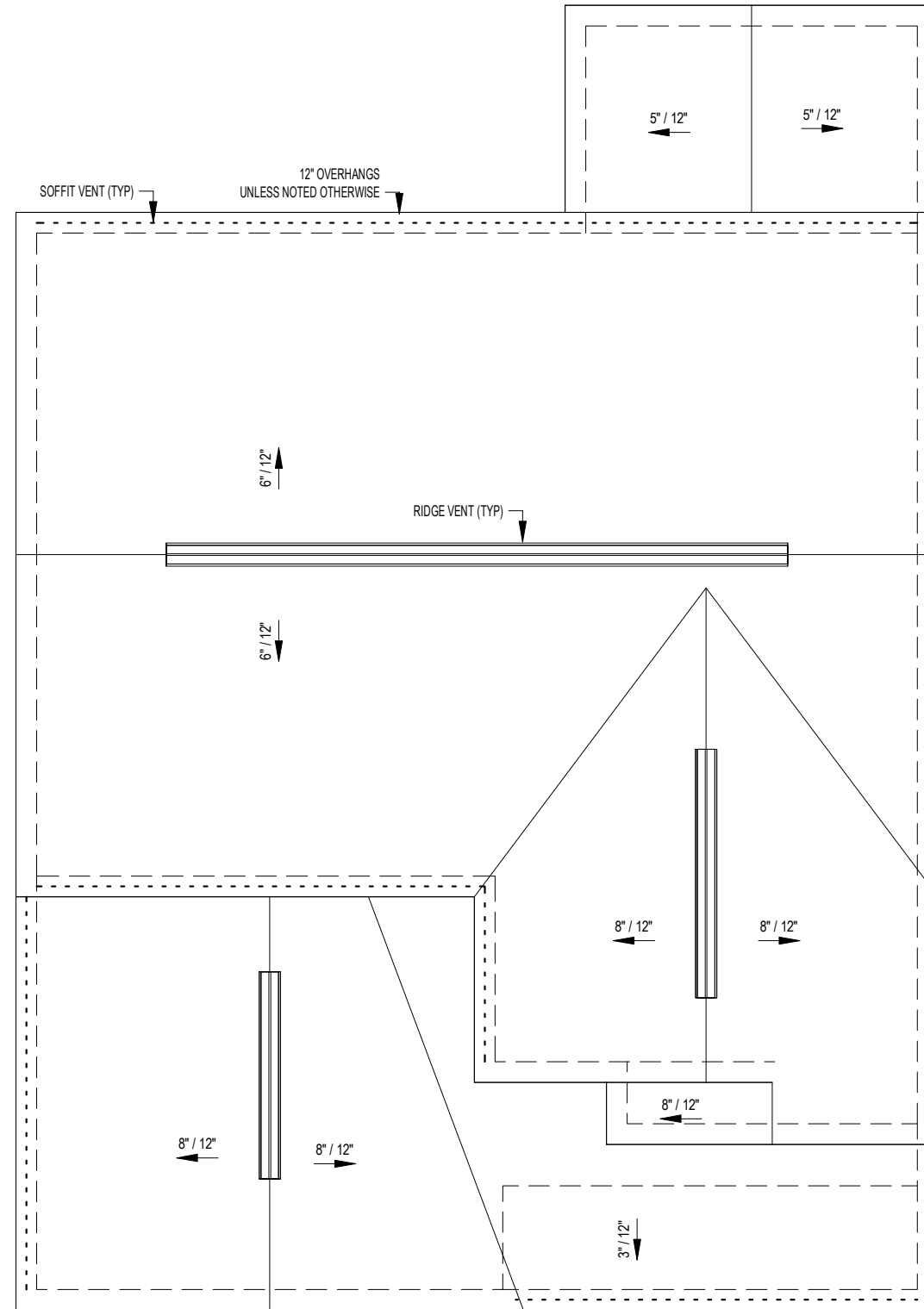
Last Revision Date:

11-10-23

Sheet #:

Pg4

- CALCS BASED ON THE FOLLOWING VALUES**
- Ridge Vents = 15 in² of net free area per linear foot
 - Roof Vents = 50 in² of net free area per unit
 - Soffit Vents = 6 in² of net free area per square foot



① Roof Plan
1/8" = 1'-0"

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Duke - GL - Elevation A

Roof Plan

Lot #:

Job #:

Address:

County:

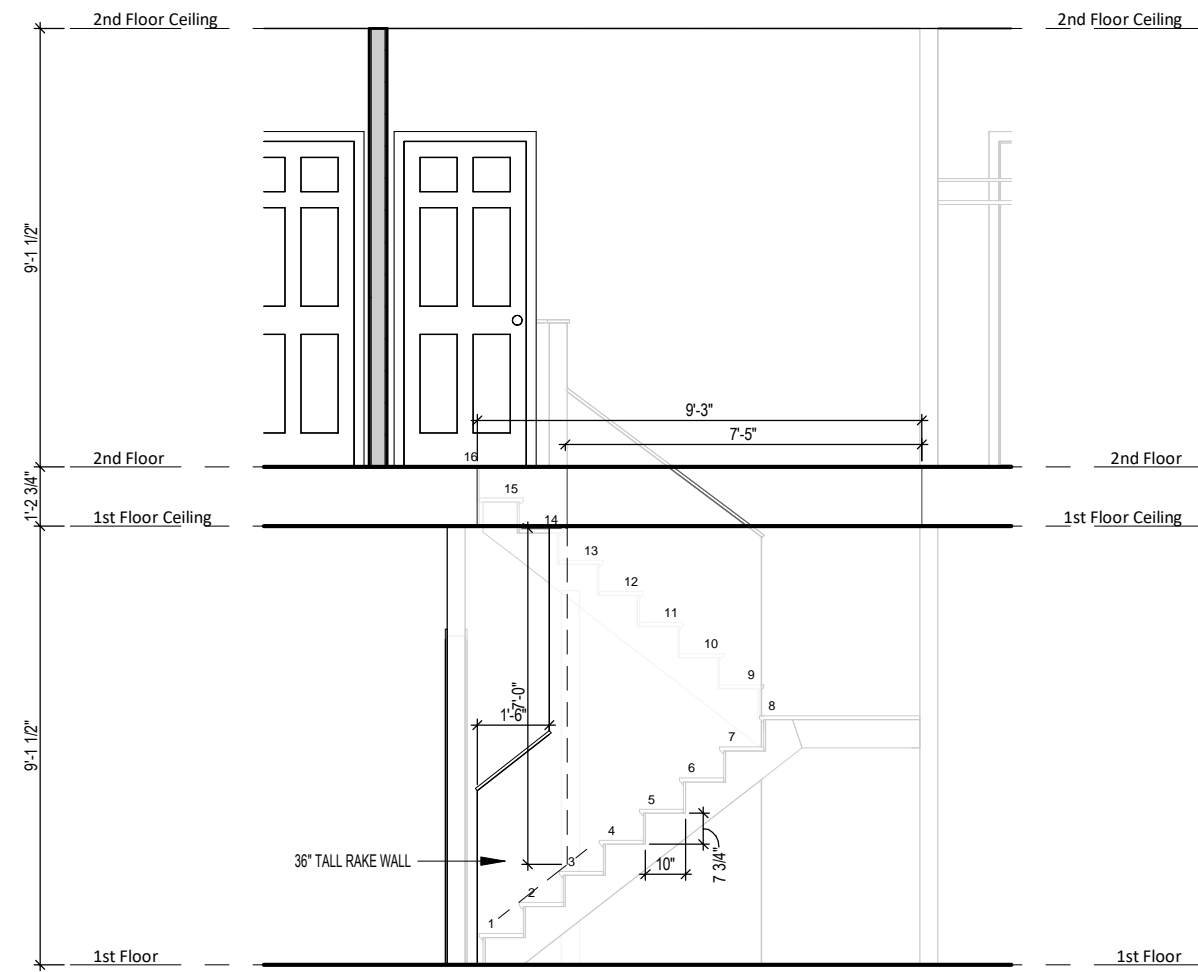
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11-10-23

Sheet #:

Pg5

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1 Stair Section
1/4" = 1'-0"

Duke - GL - Elevation A

Stair Section

Lot #:

Job #:

Address:

County:

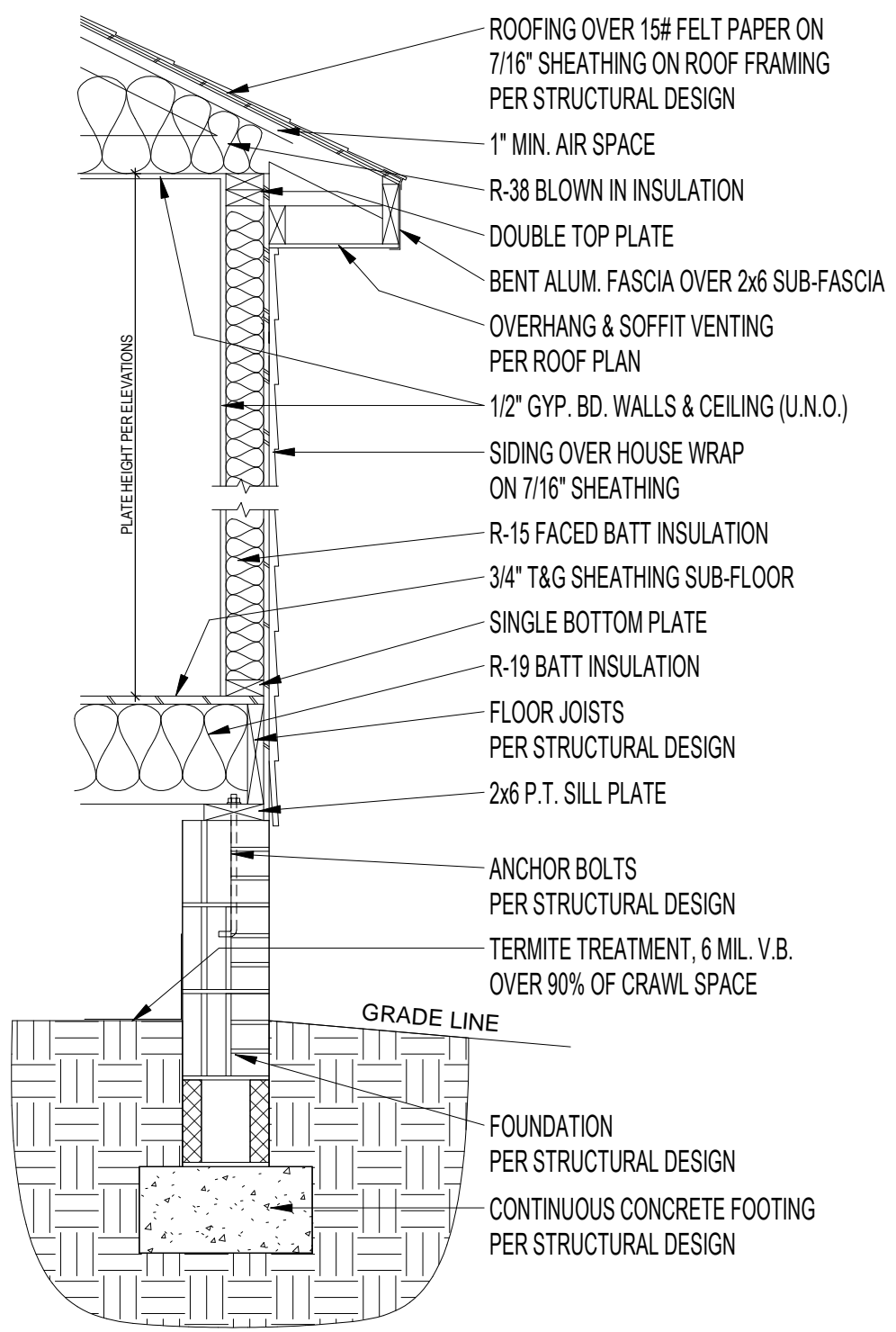
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11-10-23

Sheet #:

Pg6

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1 Typical Wall Section - Brick Fnd
3/4" = 1'-0"

Duke - GL - Elevation A

Typical Wall Section

Lot #:

Job #:

Address:

County:

Last Revision Date:

11-10-23

Sheet #:

Sec-Crawl/Brk

1) GENERAL STRUCTURAL NOTES:

- 1.1) THE DESIGN PROFESSIONAL WHOSE SEAL APPEARS ON THESE DRAWINGS IS THE STRUCTURAL ENGINEER OF RECORD (SER) FOR THIS PROJECT. THE SER BEARS RESPONSIBILITY FOR THE STRUCTURAL COMPONENTS INCLUDING RAFTERS, HIPS, VALLEYS, RIDGES, CEILING AND FLOOR JOISTS, LOAD-BEARING WALLS, BEAMS AND HEADERS, COLUMNS AND POSTS, CANTILEVERS, PIERS, GIRDERS, AND FOOTINGS.
1.2) THE SER DOES NOT CERTIFY THE DIMENSIONAL ACCURACY OF THE ARCHITECTURAL DRAWINGS, INCLUDING THE ROOF. IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO REVIEW THE ARCHITECTURAL AND STRUCTURAL DRAWINGS PRIOR TO CONSTRUCTION AND NOTIFY THE SER OF ANY DISCREPANCIES AND/OR INCOMPLETE INFORMATION.
1.3) THE SER IS NOT RESPONSIBLE FOR I-JOIST AND/OR FLOOR AND ROOF TRUSS DESIGN AND LAYOUT. FLOOR AND ROOF TRUSSES ARE TO BE DESIGNED BY A PROFESSIONAL ENGINEER LICENSED IN THE STATE OF CONSTRUCTION. IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO REVIEW FINAL TRUSS DRAWINGS PRIOR TO CONSTRUCTION AND NOTIFY THE SER OF ANY DISCREPANCIES.
1.4) THE SER IS NOT RESPONSIBLE FOR VERIFICATION OF ASSUMED FIELD CONDITIONS. IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO VERIFY ASSUMED FIELD CONDITIONS ARE MET OR EXCEEDED PRIOR TO CONSTRUCTION AND NOTIFY THE SER OF ANY DISCREPANCIES.
1.5) THE STRUCTURE IS ONLY STABLE IN ITS COMPLETED FORM. THE CONTRACTOR SHOULD PROVIDE ALL REQUIRED TEMPORARY BRACING DURING CONSTRUCTION TO STABILIZE THE STRUCTURE.
1.6) THE SER DOES NOT BEAR RESPONSIBILITY FOR THE CONSTRUCTION MEANS, METHODS, TECHNIQUES, SEQUENCES, PROCEDURES, NOR SAFETY PRECAUTIONS IN CONNECTION WITH THE CONSTRUCTION OF THIS STRUCTURE. THE SER WILL NOT BE HELD RESPONSIBLE FOR THE CONTRACTOR'S FAILURE TO CARRY OUT CONSTRUCTION IN ACCORDANCE WITH THE CONTRACT DOCUMENTS.
1.7) ANY ERRORS DUE TO FAILURE TO FOLLOW THE ABOVE PROCEDURES SHALL NOT BE THE RESPONSIBILITY OF THE SER. IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO ENSURE ANY REVISIONS ISSUED BY THE SER ARE PROMPTLY DISTRIBUTED TO THE SUBCONTRACTORS.
1.8) THE SER DOES NOT PERFORM FENESTRATION OR VENTING CALCULATIONS OR ANY OTHER CALCULATIONS THAT ARE NOT DIRECTLY RELATED TO THE STRUCTURAL DESIGN. IT IS THE RESPONSIBILITY OF THE ARCHITECTURAL DESIGNER AND/OR CONTRACTOR TO PROVIDE ANY REQUIRED CALCULATIONS OUTSIDE OF THE SCOPE OF THE STRUCTURAL DESIGN.

2) DESIGN SPECIFICATIONS:

- 2.1) BUILDING CODES:
- 2018 NORTH CAROLINA RESIDENTIAL CODE (NRC)
- ASCE/SEI 7-10 "MINIMUM DESIGN LOADS FOR BUILDINGS AND OTHER STRUCTURES"
2.2) DESIGN LIVE LOADS:
- ROOF 20 PSF
- UNINHABITABLE ATTICS WITHOUT STORAGE 10 PSF
- UNINHABITABLE ATTICS WITH LIMITED STORAGE 20 PSF
- HABITABLE ATTICS AND ATTICS SERVED WITH FIXED STAIRS 30 PSF
- SLEEPING AREAS 30 PSF
- LIVING AREAS 40 PSF
- DECKS AND BALCONIES 40 PSF
- STAIRS 40 PSF
- PASSENGER VEHICLE GARAGE 50 PSF
2.3) DESIGN DEAD LOADS:
- ROOF TRUSSES 20 PSF (10 PSF TC, 10 PSF BC)
- SOLID SAWN RAFTERS AND JOISTS 10 PSF
- I-JOISTS 12 PSF
- FLOOR TRUSSES 15 PSF (10 PSF TC, 5 PSF BC)
- INTERIOR WALLS 8 PSF
- EXTERIOR WALLS 10 PSF
- BRICK, MASONRY, AND NATURAL STONE VENEER 40 PSF
- CERAMIC TILE FLOORING 10 PSF
- NATURAL STONE TILE FLOORING 32 PSF
- NORMAL WEIGHT CONCRETE 145 PCF
2.4) DESIGN SNOW LOADS:
- GROUND SNOW LOAD 20 PSF
2.5) DESIGN LATERAL LOADS AND CRITERIA:
- ULTIMATE WIND SPEED UP TO 120 MPH
- WIND EXPOSURE B
- DESIGN WIND PRESSURE 20 PSF
- SEISMIC DESIGN CATEGORY B
2.6) DESIGN SOIL LOADS:
- SOIL BEARING CAPACITY 2000 PSF (MINIMUM, ASSUMED)
- LATERAL SOIL PRESSURE 45 PCF (MAXIMUM, ASSUMED)
2.7) DESIGN DEFLECTION LIMITS:
- ROOF TRUSSES L/360 TOTAL LOAD L/240
- SOLID SAWN RAFTERS L/240 L/180
- SOLID SAWN CEILING JOISTS L/240 L/180
- I-JOISTS AND FLOOR TRUSSES L/480 L/240
- SOLID SAWN FLOOR JOISTS L/360 L/240
- BEAMS AND HEADERS L/360 L/240
- FRAMING SUPPORTING CERAMIC TILE L/360
- FRAMING SUPPORTING NATURAL STONE TILE L/720 (3/8" MAX)
- LINTELS AND FRAMING SUPPORTING BRICK OR MASONRY L/600 (3/8" MAX)

3) FOOTING AND FOUNDATION NOTES:

- 3.1) FOUNDATIONS SHALL BE CONSTRUCTED IN ACCORDANCE WITH CHAPTER 4 OF THE 2018 NRC.
3.2) VERIFICATION OF THE ASSUMED SOIL BEARING CAPACITY IS THE RESPONSIBILITY OF THE CONTRACTOR. CONCRETE FOOTINGS SHALL NOT BE PLACED UNTIL THE SOIL BEARING CAPACITY HAS BEEN VERIFIED BY A QUALIFIED GEOTECHNICAL ENGINEER OR BUILDING INSPECTOR. CONSULT THE SER SHOULD THE SOIL BEARING CAPACITY NOT BE MET OR IF ANY OTHER ADVERSE SOIL CONDITION IS ENCOUNTERED.
3.3) THE BOTTOM OF ALL FOOTINGS SHALL EXTEND A MINIMUM OF 12" BELOW GRADE OR BELOW THE FROST LINE FOR THE CONSTRUCTION LOCATION, WHICHEVER IS GREATER.
3.4) ANY COMPACTED FILL SHALL BE PLACED UNDER THE DIRECTION OF A QUALIFIED GEOTECHNICAL ENGINEER. THE RESULTING SOIL SHALL BE COMPACTED TO A MINIMUM OF 95% OF THE MAXIMUM DRY DENSITY.
3.5) FOOTINGS SHALL BE FREE OF VEGETATION, TOPSOIL, AND FOREIGN MATERIAL. NO CONCRETE SHALL BE PLACED AGAINST ANY SUBGRADE CONTAINING WATER, ICE, FROST, OR LOOSE MATERIAL.

- 3.5) FOOTINGS SUPPORTING FOUNDATION WALLS SHALL HAVE A MINIMUM PROJECTION OF 2" AT ALL SIDES. MAXIMUM FOOTING PROJECTION AT FOUNDATION WALLS SHALL NOT EXCEED THE THICKNESS OF THE FOOTING. WOOD SILL PLATES SHALL BE ANCHORED TO THE FOUNDATION WITH 1/2" DIA ANCHOR BOLTS WITH MINIMUM 7" EMBEDMENT INTO CONCRETE OR SOLID-GROUTED MASONRY SPACED A MAXIMUM OF 6'-0" O.C. PROVIDE A MINIMUM OF TWO ANCHOR BOLTS PER PLATE SECTION AND ONE ANCHOR BOLT WITHIN 12" OF EACH CORNER. ANCHOR BOLTS SHALL BE LOCATED WITHIN THE MIDDLE THIRD OF THE SILL PLATE.
3.6) FOUNDATION WALLS MAY BE STEPPED AND FRAMED WITH CRIPPLE WALLS WHERE GRADE PERMITS (SEE NOTE 7.14 FOR WALL FRAMING REQUIREMENTS).
3.7) PROVIDE FOUNDATION WATERPROOFING AND DRAIN WITH POSITIVE SLOPE TO DAYLIGHT AS REQUIRED BY SITE CONDITIONS.
3.8) THE SITE SHALL BE GRADED TO DRAIN SURFACE WATER AWAY FROM FOUNDATION WALLS. THE GRADE SHALL FALL A MINIMUM OF 6" WITHIN THE FIRST TEN FEET.
3.9) CRAWL SPACES SHALL BE GRADED LEVEL AND CLEAR OF ALL DEBRIS. CRAWL SPACE GRADE SHALL BE LINED WITH MINIMUM 6 MIL APPROVED VAPOR BARRIER WITH ALL JOINTS LAPPED MINIMUM 12" AND SEALED. PROVIDE A MINIMUM ACCESS OPENING MEASURING 18" BY 24".

4) CONCRETE NOTES:

- 4.1) INTERIOR SLABS ON GRADE, EXCEPT FOR GARAGE FLOORS, AND FOOTINGS SHALL HAVE A MINIMUM COMPRESSIVE STRENGTH OF 2500 PSI AT 28 DAYS. FOUNDATION WALLS, GARAGE SLABS ON GRADE, AND EXTERIOR SLABS ON GRADE SHALL HAVE A MINIMUM COMPRESSIVE STRENGTH OF 3000 PSI AT 28 DAYS. ALL CONCRETE SHALL BE CAST IN PLACE.
4.2) CONCRETE SHALL BE PROPORTIONED, MIXED, AND PLACED IN ACCORDANCE WITH THE LATEST EDITIONS OF ACI 318 "BUILDING CODE REQUIREMENTS FOR REINFORCED CONCRETE" AND ACI 301 "SPECIFICATIONS FOR STRUCTURAL CONCRETE FOR BUILDINGS".
4.3) ALL CONCRETE EXPOSED TO FREEZE/THAW CYCLES SHALL BE AIR ENTRAINED WITH TOTAL AIR VOLUME NOT LESS THAN 5% OR MORE THAN 7%.
4.4) CONCRETE SLABS ON GRADE SHALL BE MINIMUM 4" THICK AND REINFORCED WITH POLYPROPYLENE FIBERS OR 6x6 WELDED WIRE FABRIC (WWF). POLYPROPYLENE FIBERS SHALL BE APPLIED AT A MINIMUM RATE OF 1.5 LBS PER CUBIC YARD. WWF SHALL BE PLACED AT THE MID-DEPTH OF THE SLAB.
4.5) CONCRETE SLABS ON GRADE SHALL BE PLACED ON MINIMUM 4" THICK GRANULAR FILL COMPACTED TO MINIMUM 95% OF THE MAXIMUM DRY DENSITY. INTERIOR SLABS ARE TO BE PLACED ON A MINIMUM 6 MIL VAPOR BARRIER PLACED ON TOP OF THE GRANULAR FILL.
4.6) 3/8" TO 1" DEEP CONTROL JOINTS (SAW-CUT OR TOOLED) ARE TO BE PLACED IN SLABS ON GRADE WITHIN 4 TO 12 HOURS OF CONCRETE FINISHING. CONTROL JOINTS ARE TO BE SPACED APPROXIMATELY 10'-0" O.C.
4.7) ALL CAST-IN-PLACE CONCRETE WALLS SHALL CONFORM TO SECTIONS R404 AND/OR R608 OF THE 2018 NRC, ACI 318 "BUILDING CODE REQUIREMENTS FOR REINFORCED CONCRETE", AND/OR ACI 332 "CODE REQUIREMENTS FOR RESIDENTIAL CONCRETE".

5) MASONRY NOTES:

- 5.1) CONCRETE MASONRY SHALL CONFORM TO ASTM C90. ALL BRICK SHALL CONFORM TO ASTM C62. ALL MASONRY SHALL HAVE A MINIMUM COMPRESSIVE STRENGTH OF 1500 PSI.
5.2) ALL MORTAR SHALL BE TYPE "S". GROUT AND MORTAR SHALL CONFORM TO ASTM C270 AND SHALL HAVE A MINIMUM COMPRESSIVE STRENGTH OF 2000 PSI AT 28 DAYS.
5.3) ALL MASONRY WALLS SHALL CONFORM TO SECTION SECTIONS R404 AND/OR R606 OF THE 2018 NRC, NCMA TR68-A "CONSTRUCTION USING CONCRETE MASONRY", AND/OR ACE 530/ASCE 5/TMS 402 "BUILDING CODE REQUIREMENTS FOR MASONRY STRUCTURES".
5.4) THE UNSUPPORTED HEIGHT OF UNGROUTED HOLLOW MASONRY PIERS SHALL NOT EXCEED FOUR TIMES THEIR LEAST DIMENSION. THE UNSUPPORTED HEIGHT OF SOLID OR SOLID-GROUTED MASONRY PIERS SHALL NOT EXCEED TEN TIMES THEIR LEAST DIMENSION.
5.5) EACH CRAWL SPACE PIER SHALL BEAR WITHIN THE MIDDLE THIRD OF ITS RESPECTIVE FOOTING AND EACH GIRDER SHALL BEAR WITHIN THE MIDDLE THIRD OF THE PIERS. PILASTERS SHALL BE BONDED TO THE PERIMETER FOUNDATION WALL.
5.6) THE TOP COURSE OF MASONRY SHALL BE GROUTED SOLID. ALL CELLS CONTAINING REINFORCING STEEL OR EMBEDDED ITEMS SHALL BE GROUTED SOLID.
5.7) HORIZONTAL WALL JOINT REINFORCEMENT SHALL BE STANDARD 9 GAUGE GALVANIZED LADDER OR TRUSS TYPE SPACED AT 16" O.C. MAXIMUM, UNLESS NOTED OTHERWISE ON THE DRAWINGS, AND SHALL CONFORM TO ASTM A951. LAP HORIZONTAL REINFORCEMENT MINIMUM 6" FOR CONTINUOUS WALL APPLICATIONS.

6) REINFORCING STEEL NOTES:

- 6.1) WELDED WIRE FABRIC SHALL CONFORM TO ASTM 185. CONCRETE REINFORCING STEEL SHALL CONFORM TO ASTM 615, GRADE 60. REINFORCING STEEL WITHIN FOOTINGS SHALL MAINTAIN MINIMUM 3" CONCRETE COVER AND REINFORCING STEEL WITHIN SLABS SHALL MAINTAIN MINIMUM 1 1/2" CONCRETE COVER. CONCRETE COVER FOR #5 AND SMALLER REINFORCING BARS WITHIN CONCRETE WALLS SHALL BE MINIMUM 1 1/2" AND CONCRETE COVER FOR #6 AND LARGER REINFORCING BARS WITHIN CONCRETE WALLS SHALL BE MINIMUM 2".
6.2) LAP REINFORCING STEEL, AS REQUIRED, A MINIMUM OF 48 TIMES THE BAR DIAMETER (18" FOR #3 BARS, 24" FOR #4 BARS, 30" FOR #5 BARS, 36" FOR #6 BARS, ETC.).

7) WOOD FRAMING NOTES:

- 7.1) SOLID SAWN FRAMING MEMBERS SHALL BE SPRUCE-PINE-FIR (SPF) #2 OR SOUTHERN YELLOW (SYP) #2 WITH THE FOLLOWING MINIMUM DESIGN VALUES:
- SPF #2: Fb=875 PSI, Fv=135 PSI, E=1,400,000 PSI
- SYP #2: Fb=750 PSI, Fv=175 PSI, E=1,400,000 PSI
7.2) ENGINEERED LUMBER BEAMS SHALL HAVE THE FOLLOWING MINIMUM DESIGN VALUES:
- LAMINATED STRAND LUMBER (LSL): Fb=2,325 PSI, Fv=310 PSI, E=1,550,000 PSI
- LAMINATED VENEER LUMBER (LVL): Fb=2,600 PSI, Fv=285 PSI, E=2,000,000 PSI
- PARALLEL STRAND LUMBER (PSL): Fb=2,900 PSI, Fv=290 PSI, E=2,000,000 PSI
7.3) ENGINEERED LUMBER COLUMNS SHALL HAVE THE FOLLOWING MINIMUM DESIGN VALUES:
- LAMINATED STRAND LUMBER (LSL): Fb=1,700 PSI, Fc=710 PSI, E=1,300,000 PSI
- LAMINATED VENEER LUMBER (LVL): Fb=2,600 PSI, Fc=750 PSI, E=2,000,000 PSI
- PARALLEL STRAND LUMBER (PSL): Fb=2,400 PSI, Fc=545 PSI, E=1,800,000 PSI
7.4) WOOD IN CONTACT WITH THE GROUND, CONCRETE, OR MASONRY SHALL BE PRESSURE TREATED IN ACCORDANCE WITH AWPA STANDARD C-15. ALL OTHER MOISTURE EXPOSED LUMBER SHALL BE TREATED IN ACCORDANCE WITH AWPA STANDARD C-2 OR SHALL BE A NATURALLY DURABLE DECAY RESISTANT WOOD AS DEFINED IN SECTION R202 OF THE 2018 NRC.
7.5) NAILS SHALL BE COMMON WIRE NAILS UNLESS NOTED OTHERWISE AND SHALL CONFORM TO ASTM F1667-05.

- 7.6) BOLTS SHALL CONFORM TO ASTM A307 UNLESS NOTED OTHERWISE. INSTALL STANDARD STEEL WASHERS FOR THE NUT AND BOLT HEAD WHEN BOLTING WOOD MEMBERS. HOLES FOR BOLTS SHALL BE 1/16" LARGER THAN THE BOLT DIAMETER UNLESS NOTED OTHERWISE.
7.7) LAG SCREWS SHALL CONFORM TO ANSI/ASME B18.2.1. INSTALL STANDARD STEEL WASHERS FOR THE SCREW HEAD. PILOT HOLES SHALL BE USED FOR LAG SCREW INSTALLATION AND SHALL BE BORED ACCORDING TO NDS SPECIFICATIONS.
7.8) INDIVIDUAL STUDS BUILT UP TO FORM A COLUMN SHALL BE FASTENED WITH (2) ROWS OF 10d NAILS @ 6" O.C. STAGGERED. BLOCKING MATCHING OR EXCEEDING THE WIDTH OF THE STUD COLUMN SHALL BE INSTALLED AT ALL FLOOR LEVELS TO ENSURE PROPER LOAD TRANSFER THROUGH THE STRUCTURE.
7.9) MULTI-PLY SOLID SAWN BEAMS AND HEADERS SHALL BE FASTENED WITH (2) ROWS OF 10d NAILS @ 16" O.C. STAGGERED FOR 2x8 AND SMALLER OR (3) ROWS OF 10d NAILS @ 16" O.C. STAGGERED FOR 2x10 AND LARGER. APPLY NAILING FROM BOTH FACES FOR (3) OR MORE PLYS.
7.10) MULTI-PLY ENGINEERED LUMBER BEAMS AND HEADERS SHALL BE FASTENED PER THE MANUFACTURER SPECIFICATIONS UNLESS NOTED OTHERWISE.
7.11) BEAMS PERPENDICULAR TO THE SUPPORTING WALL SHALL BEAR THE FULL WIDTH OF THE WALL UNLESS NOTED OTHERWISE AND SHALL BE SUPPORTED BY A COLUMN OF BUILT UP STUDS THAT MATCHES OR EXCEEDS THE WIDTH OF THE BEAM (NOT LESS THAN TWO STUDS).
7.12) BEAMS PARALLEL TO THE SUPPORTING WALL SHALL BEAR THE WIDTH OF THE SPECIFIED STUD COLUMN ON THE END OF THE WALL (BEARING SHALL NOT BE LESS THAN 3" TO BEAR OVER TWO STUDS UNLESS NOTED OTHERWISE).
7.13) HEADERS SHALL BE SUPPORTED BY JACK STUDS AND KING STUDS BASED ON THE FOLLOWING CONDITIONS UNLESS NOTED OTHERWISE:
CLEAR SPAN: # OF JACK STUDS: # OF KING STUDS (EXTERIOR): # OF KING STUDS (INTERIOR):
UP TO 3'-0" (1) (1) (1)
>3'-0" TO 6'-0" (2) (2) (1)
>6'-0" TO 9'-0" (2) (3) (2)
>9'-0" TO 12'-0" (3) (4) (2)
>12'-0" TO 15'-0" (3) (5) (3)
>15'-0" TO 18'-0" (4) (6) (3)
7.14) STUD SPACING FOR EXTERIOR AND INTERIOR BEARING WALLS SHALL BE BASED ON THE FOLLOWING CONDITIONS UNLESS NOTED OTHERWISE:
- SUPPORTING UP TO ONE STORY ABOVE:
UP TO 10'-1 1/2" IN HEIGHT 2x4 @ 16" O.C. OR 2x6 @ 24" O.C.
>10'-1 1/2" UP TO 12'-1 1/2" 2x4 @ 12" O.C. OR 2x6 @ 16" O.C.
- SUPPORTING UP TO TWO STORIES ABOVE:
UP TO 10'-1 1/2" IN HEIGHT 2x4 @ 12" O.C. OR 2x6 @ 16" O.C.
>10'-1 1/2" UP TO 12'-1 1/2" 2x6 @ 12" O.C.
7.15) ALL EXTERIOR WALLS TO BE FULLY SHEATHED WITH 5/8" APA RATED OSB EXPOSURE 1 ATTACHED WITH 8d NAILS @ 6" O.C. ALONG PANEL EDGES AND 12" O.C. IN PANEL FIELD UNLESS NOTED OTHERWISE.
7.16) ROOF SHEATHING SHALL BE MINIMUM 5/8" APA RATED SHEATHING EXPOSURE 1 ATTACHED TO ROOF FRAMING WITH 8d NAILS @ 6" O.C. ALONG PANEL EDGES AND 12" O.C. IN PANEL FIELD UNLESS NOTED OTHERWISE. SHEATHING SHALL HAVE A SPAN RATING THAT MATCHES OR EXCEEDS THE FRAMING SPACING.
7.17) FLOOR SHEATHING SHALL BE MINIMUM 5/8" APA RATED TONGUE AND GROOVE SHEATHING EXPOSURE 1 ATTACHED TO FLOOR FRAMING WITH 8d NAILS @ 6" O.C. ALONG PANEL EDGES AND 12" O.C. IN PANEL FIELD UNLESS NOTED OTHERWISE. SHEATHING SHALL HAVE A SPAN RATING THAT MATCHES OR EXCEEDS THE FRAMING SPACING.
7.18) EXTERIOR WOOD DECKS SHALL BE CONSTRUCTED IN ACCORDANCE WITH APPENDIX M OF THE 2018 NRC UNLESS NOTED OTHERWISE.
7.19) EXTERIOR WOOD POSTS SHALL BE SECURED TO THE BAND AT THE BOTTOM AND BEAM AT THE TOP WITH (1) SIMPSON STRONG-TIE H6 HURRICANE TIE, (2) H2.5A HURRICANE TIES, OR (1) SECTION OF CS16 COIL STRAPPING WITH MINIMUM 9" END LENGTHS. FOR MASONRY OR CONCRETE FOUNDATIONS, SECURE POSTS AT THE BOTTOM WITH A SIMPSON STRONG-TIE ABU POST BASE FOR THE SPECIFIED POST SIZE.

8) STEEL FRAMING NOTES:

- 8.1) STEEL FRAMING SHALL CONFORM TO THE FOLLOWING SPECIFICATIONS:
- W SHAPES ASTM A992
- CHANNELS AND ANGLES ASTM A36
- PLATES AND BARS ASTM A36
- HOLLOW STRUCTURAL SECTIONS (HSS) ASTM A500, GRADE B
- PIPES ASTM A53, GRADE B, TYPE E OR S
8.2) STEEL BEAMS SHALL BE ANCHORED AT THE BOTTOM FLANGE TO EACH SUPPORT AS FOLLOWS UNLESS NOTED OTHERWISE:
- WOOD FRAMING (2) 3/8" DIAMETER x 4" LONG LAG SCREWS
- CONCRETE (2) 3/8" DIAMETER x 4" LONG SST TITEN HD (OR EQUAL) SCREW ANCHORS
- MASONRY (GROUTED SOLID) (2) 3/8" DIAMETER x 4" LONG SST TITEN HD (OR EQUAL) SCREW ANCHORS
- STEEL COLUMN (2) 3/8" DIAMETER BOLTS OR 1/2" CONTINUOUS FILLET WELD
8.3) ATTACH A 2x NAILER TO THE TOP FLANGE OF STEEL BEAMS w/ (2) ROWS OF 3/8" DIAMETER CARRIAGE BOLTS @ 48" O.C. STAGGERED UNLESS NOTED OTHERWISE.
8.4) FLITCH BEAMS SHALL BE BOLTED WITH (2) ROWS OF 3/8" DIAMETER BOLTS @ 16" O.C. STAGGERED.

9) SUPPORT OF MASONRY OR NATURAL STONE VENEER:

- 9.1) VENEER ABOVE OPENINGS SHALL BE SUPPORTED BY STEEL ANGLES AS FOLLOWS UNLESS NOTED OTHERWISE:
CLEAR SPAN: SIZE OF STEEL ANGLE:
UP TO 3'-0" 3x3x1/4
>3'-0" UP TO 6'-0" 5x3 3/8x1/4 (LONG LEG VERTICAL)
>6'-0" UP TO 8'-0" 6x4x3/8 (LONG LEG VERTICAL)
9.2) VENEER ABOVE OPENINGS WITH A CLEAR SPAN EXCEEDING 8'-0" SHALL BE SUPPORTED BY A 6x4x3/8 STEEL ANGLE FASTENED TO THE HEADER WITH (2) ROWS OF 3/8" DIAMETER LAG SCREWS @ 16" O.C. UNLESS NOTED OTHERWISE.
9.3) STEEL ANGLES SHALL BE EMBEDDED MINIMUM 4" INTO THE VENEER AT EACH SIDE OF THE OPENING.
9.4) VENEER ABOVE ROOF LINES SHALL BE SUPPORTED BY A 6x4x3/8 STEEL ANGLE FASTENED TO (2) 2x10 BLOCKING w/ (2) ROWS OF 3/8" DIAMETER LAG SCREWS @ 16" O.C. BLOCKING TO BE FASTENED TO WALL STUDS AT EACH END WITH (4) 10d TOE NAILS PER PLY. FOR ROOF SLOPES EXCEEDING 7:12, WELD 3"x3"x1/4" STEEL PLATE STOPS @ 24" O.C. TO STEEL ANGLE.

COMMON ABBREVIATIONS

Table with 2 columns: Abbreviation and Full Name. Includes terms like AFF ABOVE FINISHED FLOOR, ALT ALTERNATE, ARCH ARCHITECTURAL, BRG BEARING, BTM BOTTOM, CIP CAST-IN-PLACE, CLR CLEAR, CMU CONCRETE MASONRY UNIT, CONC CONCRETE, CONN CONNECTION, CONT CONTINUOUS, DBL DOUBLE, DIA DIAMETER, DJ DOUBLE JOIST, DSP DOUBLE STUD POCKET, EA EACH, EQ EQUAL, FLR FLOOR, FND FOUNDATION, FTG FOOTING, GA GAUGE, HDG HOT-DIPPED GALVANIZED, HDR HEADER, HGR HANGER, HORIZ HORIZONTAL, ICF INSULATED CONCRETE FORMS, INFO INFORMATION, LBS POUNDS, LSL LAMINATED STRAND LUMBER, LVL LAMINATED VENEER LUMBER, MAX MAXIMUM, MFR MINIMUM MANUFACTURER, MIN MINIMUM, NTS NOT TO SCALE, O.C. ON CENTER, PCF POUNDS PER CUBIC FOOT, PLF POUNDS PER LINEAR FOOT, PSF POUNDS PER SQUARE FOOT, PSI POUNDS PER SQUARE INCH, PSL PARALLEL STRAND LUMBER, PT PRESSURE TREATED, QJ QUADRUPLE JOIST, REINF REINFORCE, SER STRUCTURAL ENGINEER OF RECORD, SF SQUARE FEET, SJ SINGLE JOIST, SP SPACE (SPACING), SPEC(S) SPECIFICATION(S), SPF SPRUCE-PINE-FIR, SST SIMPSON STRONG-TIE, SYP SOUTHERN YELLOW PINE, TJ TRIPLE JOIST, TRPL TRIPLE, TSP TRIPLE STUD POCKET, TYP TYPICAL, UNO UNLESS NOTED OTHERWISE, VERT VERTICAL, W/ WITH, WWF WELDED WIRE FABRIC, XJ EXTRA JOIST.

LEGEND

Legend table with symbols and descriptions. Includes symbols for STUD COLUMN AT POINT LOADS, OFFSET POINT LOAD, BEARING WALL, OFFSET BEARING WALL ABOVE, BEAM, GIRDER, OR HEADER AS SPECIFIED, JOIST, RAFTER, OR TRUSS AS SPECIFIED, MECHANICAL FASTENER, FULL HEIGHT MASONRY OR NATURAL STONE VENEER, MASONRY OR NATURAL STONE VENEER WATERTABLE BELOW, PLUMBING OR APPLIANCES ABOVE, SOLID GROUTED MASONRY, ROOF SUPPORT BELOW, FULL HEIGHT BRICK VENEER BELOW ROOF.

MECHANICAL FASTENERS

ALLOWABLE I-JOIST SUBSTITUTIONS

Table with 4 columns: BEAM SIZE, FASTENER, SPECIFIED SERIES, EQUIVALENT SERIES. Lists various beam sizes (2x6, 2x8, 2x10, 2x12) and their corresponding fasteners and joist substitutions (TJI 110, TJI 210, TJI 230, TJI 360, TJI 560).

NOTES:

- MECHANICAL FASTENERS TO BE INSTALLED BASED ON THIS SCHEDULE UNLESS NOTED OTHERWISE.
- ALL SPECIFIED MECHANICAL FASTENERS ARE SIMPSON STRONG-TIE BRAND. OTHER BRAND FASTENERS WITH EQUIVALENT OR BETTER CAPACITY MAY BE SUBSTITUTED.
- ALL MECHANICAL FASTENERS IN CONTACT WITH PRESSURE TREATED LUMBER SHALL BE HOT-DIPPED GALVANIZED OR EQUIVALENT CORROSIVE RESISTANT COATING.



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DUKE - ELEVATION A GARAGE LEFT GREYSTONE HOMES

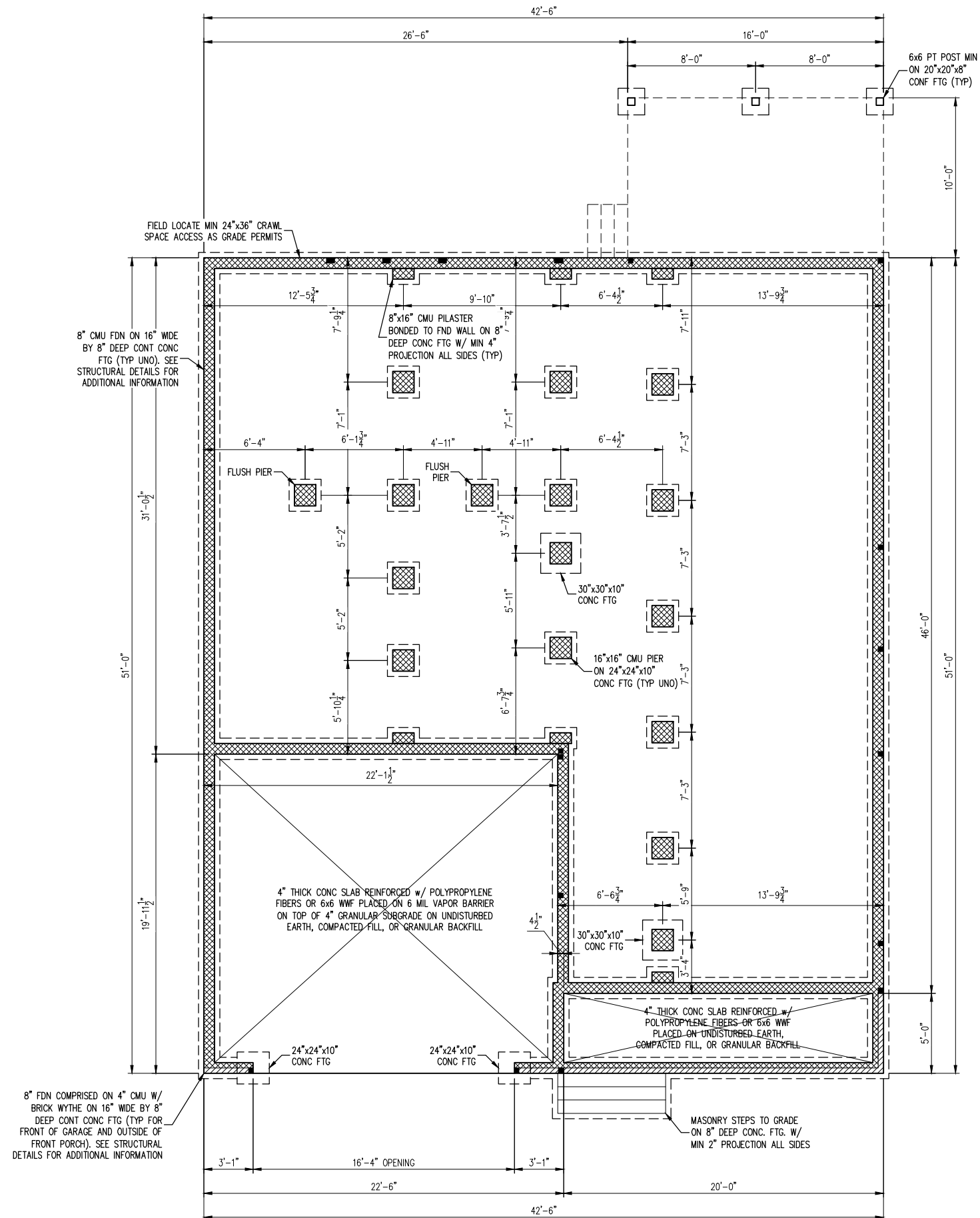
PROJECT NO.: 23-PAD-001

DATE: MARCH 11, 2024

11x17 PRINT SCALE: 1/2" = 1'-0" (LNU) 24x36 PRINT SCALE: 1/4" = 1'-0" (LNU)

SHEET: STANDARD STRUCTURAL NOTES

S-0



CRAWL SPACE FOUNDATION NOTES:

1. THE BOTTOM OF ALL FOOTINGS SHALL EXTEND A MINIMUM OF 12" BELOW GRADE OR BELOW THE FROST LINE, WHICHEVER IS GREATER.
2. ALL FOOTINGS TO BE EXCAVATED TO FIRM SOIL w/ A MIN REQUIRED BEARING CAPACITY OF 2,000 PSF. CONSULT THE SER SHOULD THE SOIL BEARING CAPACITY NOT BE MET OR IF ANY OTHER ADVERSE SOIL CONDITION IS ENCOUNTERED.
3. THE UNSUPPORTED HEIGHT OF UNGROUTED HOLLOW MASONRY PIERS SHALL NOT EXCEED FOUR TIMES THEIR LEAST DIMENSION. THE UNSUPPORTED HEIGHT OF SOLID OR SOLID-GROUTED MASONRY PIERS SHALL NOT EXCEED TEN TIMES THEIR LEAST DIMENSION.
4. UNSUPPORTED PORCH AND GARAGE FOUNDATION WALLS SHALL NOT SUPPORT MORE THAN 48" OF UNBALANCED BACKFILL. CONSULT THE SER FOR REINFORCEMENT REQUIREMENTS SHOULD UNBALANCED BACKFILL AGAINST UNSUPPORTED FOUNDATION WALLS EXCEED 48".
5. THE TOP COURSE OF MASONRY SHALL BE GROUTED SOLID. ALL CELLS CONTAINING REINFORCING STEEL OR EMBEDDED ITEMS SHALL BE GROUTED SOLID.
6. REFER TO NOTES AND DETAIL SHEETS FOR ADDITIONAL STRUCTURAL INFORMATION.

LEGEND

	POINT LOAD ABOVE THAT REQUIRES SOLID BLOCKING TO FOUNDATION
--	---



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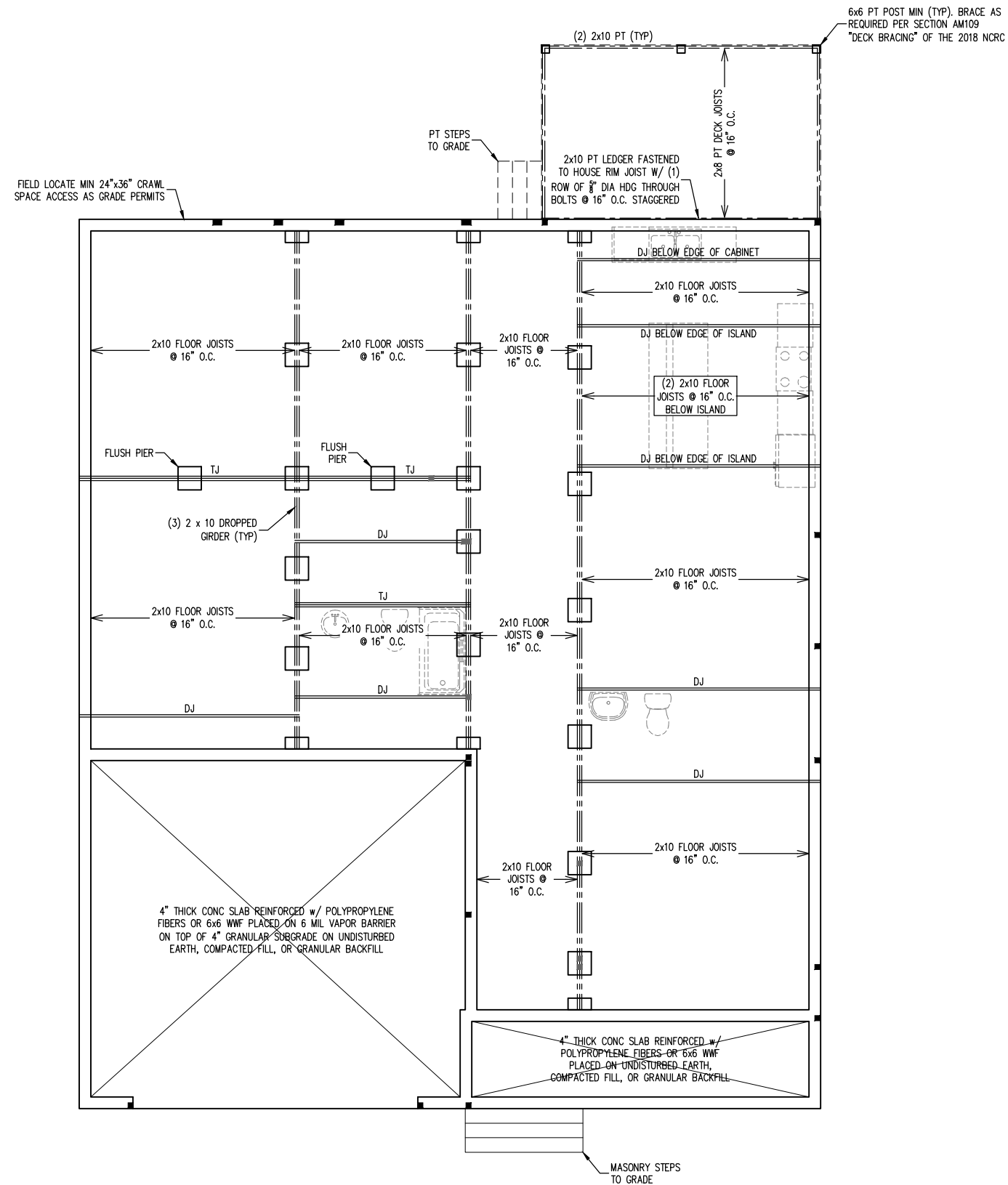
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DUKE - ELEVATION A
GARAGE LEFT
GREYSTONE HOMES

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SHEET: CRAWL SPACE FOUNDATION PLAN

S-1

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CRAWL SPACE FRAMING NOTES:

- SOLID SAWN FRAMING LUMBER TO BE SPF #2 OR SYP #2.
- ALL LOAD BEARING HEADERS TO BE (2) 2x6 UNO.
- PROVIDE A DOUBLE OR TRIPLE JOIST UNDER WALLS PARALLEL TO FLOOR JOISTS WHERE NOTED ON THE PLAN.
- FOUNDATION WALLS MAY BE STEPPED DOWN TO FRAMED CRIPPLE WALLS AS GRADE PERMITS. CRIPPLE WALLS TO BE 2x4 @ 12" O.C. OR 2x6 @ 16" O.C. UNO.
- ALL FRAMED WALLS TO BE SHEATHED WITH 7/8" APA RATED OSB EXPOSURE 1 ATTACHED WITH 8d NAILS @ 6" O.C. ALONG PANEL EDGES AND 12" O.C. IN PANEL FIELD (UNO) TO SATISFY WALL BRACING REQUIREMENTS PER SECTION R602.10.3 "CONTINUOUS SHEATHING" OF THE 2018 NCRS.
- EXTERIOR POSTS TO BE SECURED TO BEAM AT TOP WITH (1) SST H6, (2) SST H2.5A, OR (1) SST CS16 STRAP WITH MIN 9" END LENGTHS. SECURE POSTS TO FOOTING AT BOTTOM WITH A SST ABU POST BASE FOR THE SPECIFIED POST SIZE.
- REFER TO NOTES AND DETAIL SHEETS FOR ADDITIONAL STRUCTURAL INFORMATION.

LEGEND

■	POINT LOAD ABOVE THAT REQUIRES SOLID BLOCKING TO FOUNDATION
■	OFFSET POINT LOAD FROM ABOVE TO BE SUPPORTED BY GIRDER, BEAM, HEADER, JOIST, OR BLOCKING AS SPECIFIED
---	BEAM, GIRDER, OR HEADER AS SPECIFIED
---	JOIST, RAFTER, OR TRUSS AS SPECIFIED
○	PLUMBING ABOVE (FOR REFERENCE ONLY, REFER TO ARCH PLANS)



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GREYSTONE HOMES

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24x36 PRINT SCALE: 1/2" = 1'-0" (UNO)
SHEET: CRAWL SPACE FRAMING PLAN

S-2

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24x36 PRINT SCALE: 1/2" = 1'-0" (UNO)
SHEET: FIRST FLOOR
FRAMING PLAN

S-3

FIRST FLOOR FRAMING NOTES:

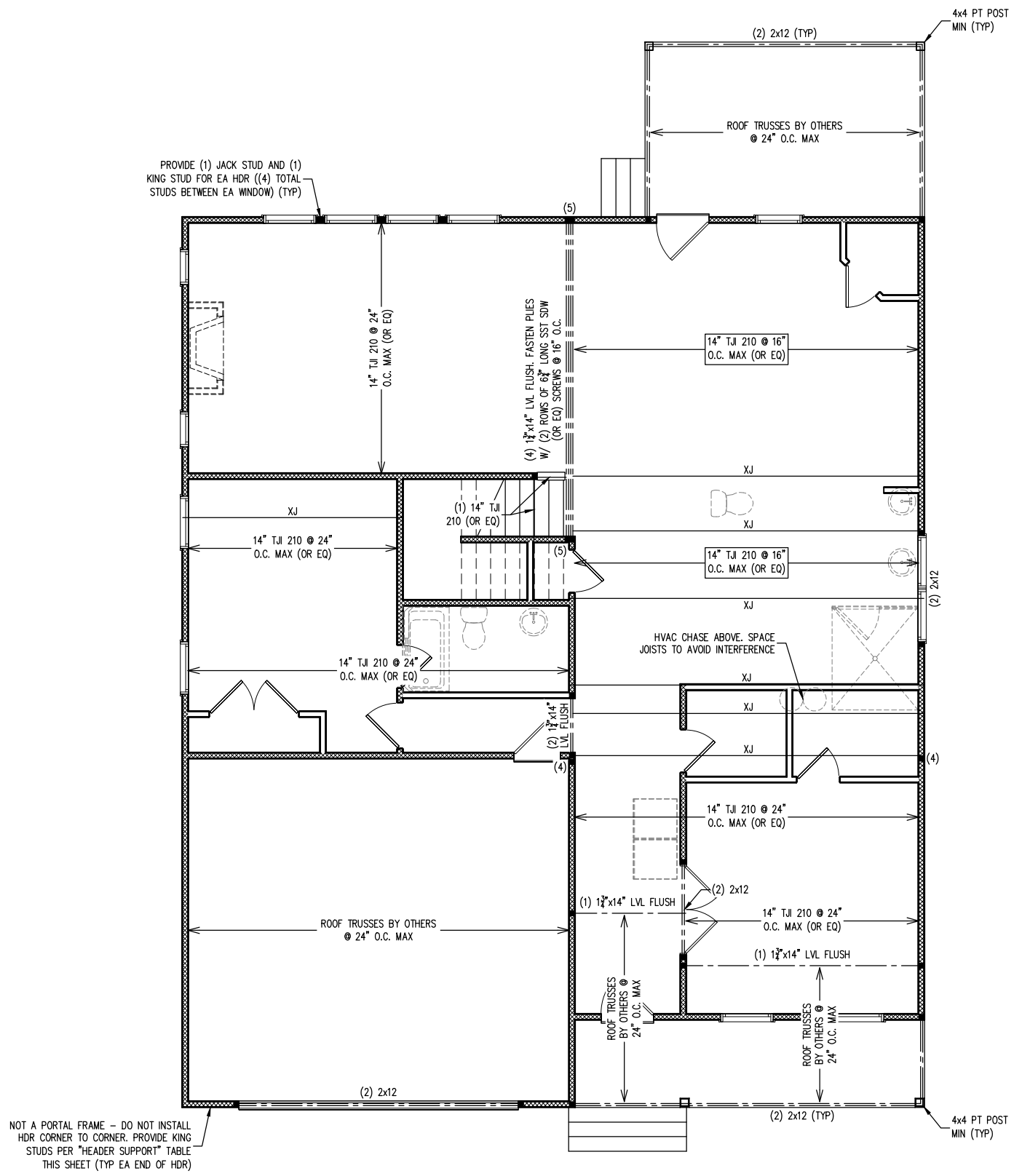
- SOLID SAWN FRAMING LUMBER TO BE SPF #2 OR SYP #2.
- ALL LOAD BEARING HEADERS TO BE (2) 2x6 UNO.
- HEADERS TO BE SUPPORTED BY JACK STUDS AND KING STUDS PER THE TABLE BELOW UNO.
- EXTERIOR AND INTERIOR LOAD BEARING WALLS TO BE 2x4 @ 16" O.C. OR 2x6 @ 24" O.C. UNO.
- ALL EXTERIOR WALLS TO BE SHEATHED WITH 5/8" APA RATED OSB EXPOSURE 1 ATTACHED WITH 8d NAILS @ 6" O.C. ALONG PANEL EDGES AND 12" O.C. IN PANEL FIELD (UNO) TO SATISFY WALL BRACING REQUIREMENTS PER SECTION R602.10.3 "CONTINUOUS SHEATHING" OF THE 2018 NCR.C.
- PROVIDE AN EXTRA JOIST UNDER WALLS PARALLEL TO FLOOR JOISTS WHERE NOTED ON THE PLAN.
- BCI 5000s-1.8 JOISTS MAY BE USED IN LIEU OF TJI 210 JOISTS AT THE DEPTH AND SPACING INDICATED ON THE PLAN. SEE TABLE ON SHEET S-0 FOR ADDITIONAL EQUIVALENT I-JOIST ALTERNATIVES.
- EXTERIOR POSTS TO BE SECURED TO BAND AT BOTTOM AND BEAM AT TOP WITH (1) SST H6, (2) SST H2.5A, OR (1) SST CS16 STRAP WITH MIN 9" END LENGTHS. FOR MASONRY OR CONCRETE FOUNDATIONS, SECURE POSTS AT BOTTOM WITH A SST ABU POST BASE FOR THE SPECIFIED POST SIZE.
- REFER TO NOTES AND DETAIL SHEETS FOR ADDITIONAL STRUCTURAL INFORMATION.

HEADER SUPPORT

CLEAR SPAN:	JACK STUDS:	KING STUDS (EXTERIOR):	KING STUDS (INTERIOR):
UP TO 3'	(1)	(1)	(1)
>3' TO 6'	(2)	(2)	(1)
>6' TO 9'	(2)	(3)	(2)
>9' TO 12'	(3)	(4)	(2)
>12' TO 15'	(3)	(5)	(3)
>15' TO 18'	(4)	(6)	(3)

LEGEND

■ (#)	STUD COLUMN AT POINT LOADS THAT REQUIRES SOLID BLOCKING TO GIRDER OR FOUNDATION. (#) DENOTES NUMBER OF STUDS. (2) STUDS REQUIRED IF NOT SPECIFIED.
▨	BEARING WALL
---	BEAM, GIRDER, OR HEADER AS SPECIFIED
---	JOIST, RAFTER, OR TRUSS AS SPECIFIED
⊙	PLUMBING ABOVE (FOR REFERENCE ONLY, REFER TO ARCH PLANS)



NOT A PORTAL FRAME - DO NOT INSTALL HDR CORNER TO CORNER. PROVIDE KING STUDS PER "HEADER SUPPORT" TABLE THIS SHEET (TYP EA END OF HDR)

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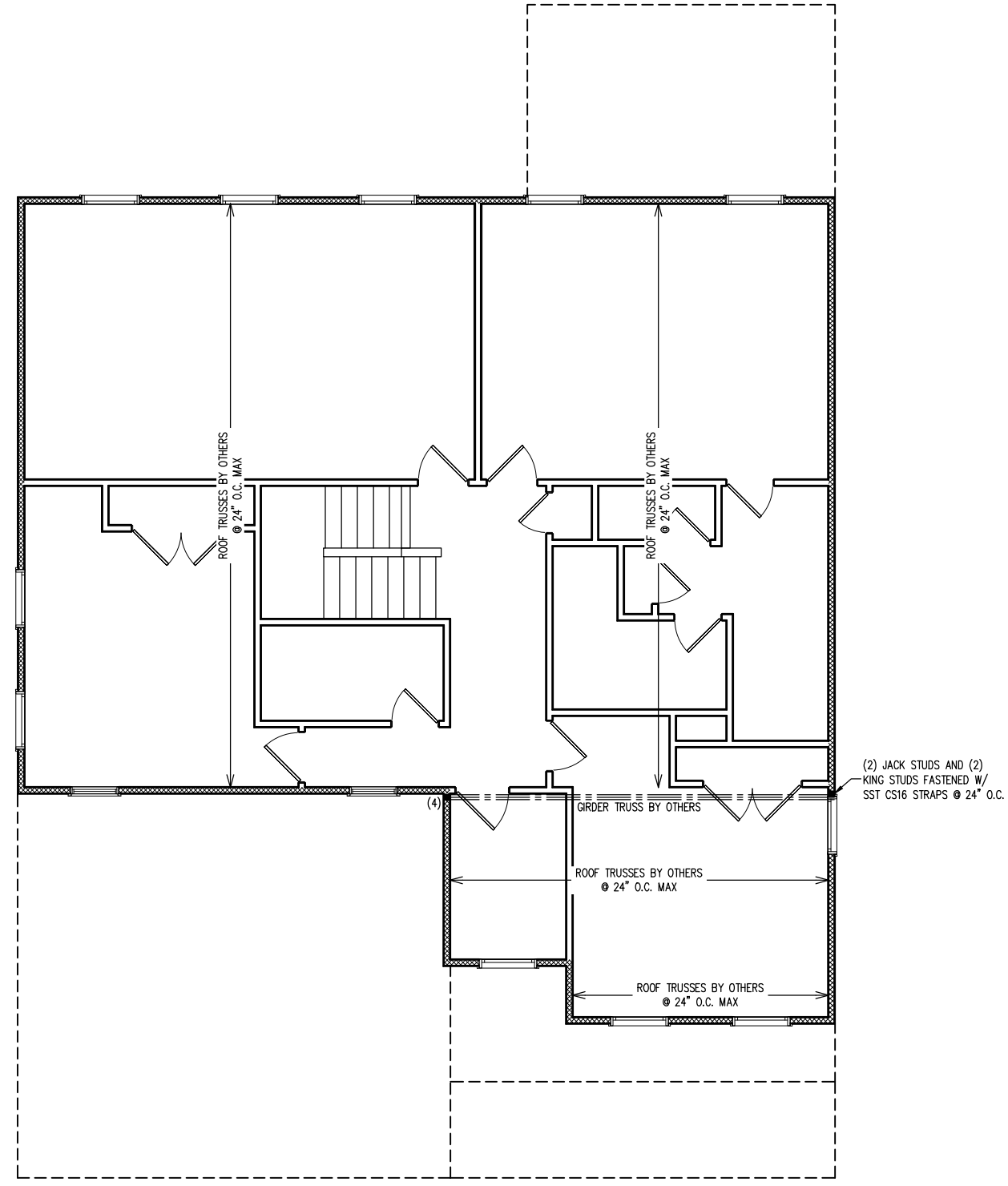
- SECOND FLOOR FRAMING NOTES:**
- SOLID SAWN FRAMING LUMBER TO BE SPF #2 OR SYP #2.
 - LOAD BEARING HEADERS TO BE (2) 2x6 UNO.
 - HEADERS TO BE SUPPORTED BY JACK STUDS AND KING STUDS PER THE TABLE BELOW.
 - EXTERIOR AND INTERIOR LOAD BEARING WALLS TO BE 2x4 @ 16" O.C. OR 2x6 @ 24" O.C. UNO.
 - EXTERIOR WALLS TO BE SHEATHED WITH 7/8" APA RATED OSB EXPOSURE 1 ATTACHED WITH 8d NAILS @ 6" O.C. ALONG PANEL EDGES AND 12" O.C. IN PANEL FIELD (UNO) TO SATISFY WALL BRACING REQUIREMENTS PER SECTION R602.10.3 "CONTINUOUS SHEATHING" OF THE 2018 NCR. REFER TO NOTES AND DETAIL SHEETS FOR ADDITIONAL STRUCTURAL INFORMATION.

HEADER SUPPORT

CLEAR SPAN:	JACK STUDS:	KING STUDS (EXTERIOR):	KING STUDS (INTERIOR):
UP TO 3'	(1)	(1)	(1)
>3' TO 6'	(2)	(2)	(1)
>6' TO 9'	(2)	(3)	(2)
>9' TO 12'	(3)	(4)	(2)
>12' TO 15'	(3)	(5)	(3)
>15' TO 18'	(4)	(6)	(3)

LEGEND

■ (#)	STUD COLUMN AT POINT LOADS THAT REQUIRES SOLID BLOCKING TO GIRDER OR FOUNDATION. (#) DENOTES NUMBER OF STUDS. (2) STUDS REQUIRED IF NOT SPECIFIED.
▨	BEARING WALL
---	BEAM, GIRDER, OR HEADER AS SPECIFIED



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DUKE - ELEVATION A
 GARAGE LEFT
 GREYSTONE HOMES

PROJECT NO.: 23-PAD-001
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 24x36 PRINT SCALE: 1/2" = 1'-0" (UNO)
 SHEET: SECOND FLOOR FRAMING PLAN

S-4

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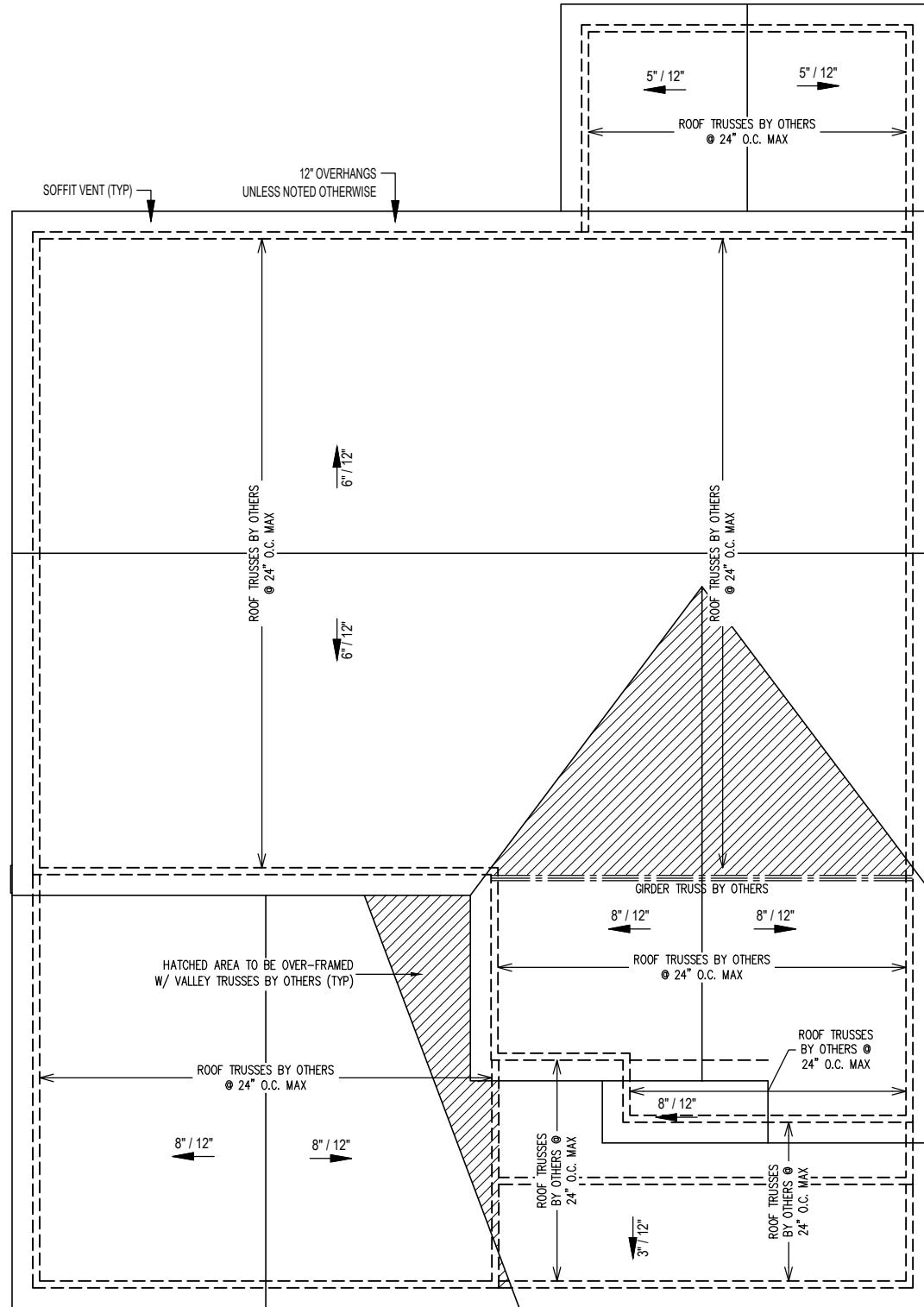
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ROOF FRAMING NOTES:

- SOLID SAWN FRAMING LUMBER TO BE SPF #2 OR SYP #2.
- ROOF SHEATHING TO BE 7/8" MINIMUM APA RATED EXPOSURE 1 ATTACHED TO ROOF FRAMING WITH 8d NAILS @ 6" O.C. ALONG PANEL EDGES AND 12" O.C. IN PANEL FIELD UNO. SHEATHING SHALL HAVE A SPAN RATING THAT MATCHES OR EXCEEDS THE FRAMING SPACING.
- TIE ROOF TRUSSES TO WALL FRAMING WITH (1) SST H2.5A HURRICANE TIE UNO BY TRUSS DRAWINGS.
- REFER TO NOTES AND DETAIL SHEETS FOR ADDITIONAL STRUCTURAL INFORMATION.

LEGEND

---	BEAM, GIRDER, OR HEADER AS SPECIFIED
---	ROOF SUPPORT BELOW



DUKE - ELEVATION A
GARAGE LEFT
GREYSTONE HOMES

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24x36 PRINT SCALE: 1/4" = 1'-0" (UNO)

SHEET: ROOF FRAMING PLAN

S-5

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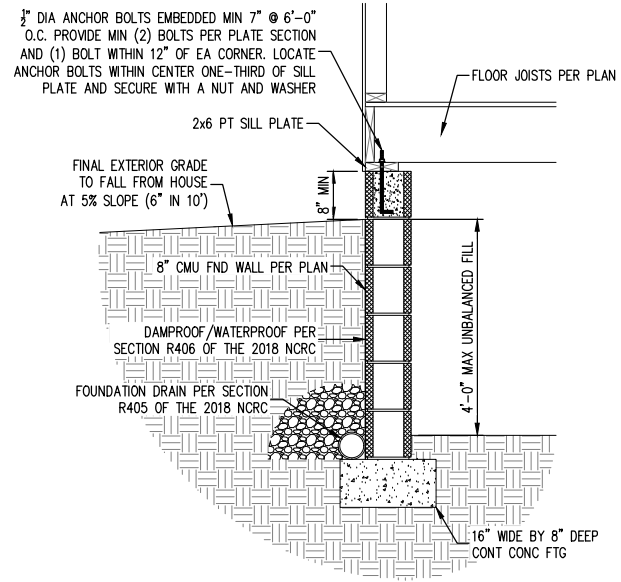
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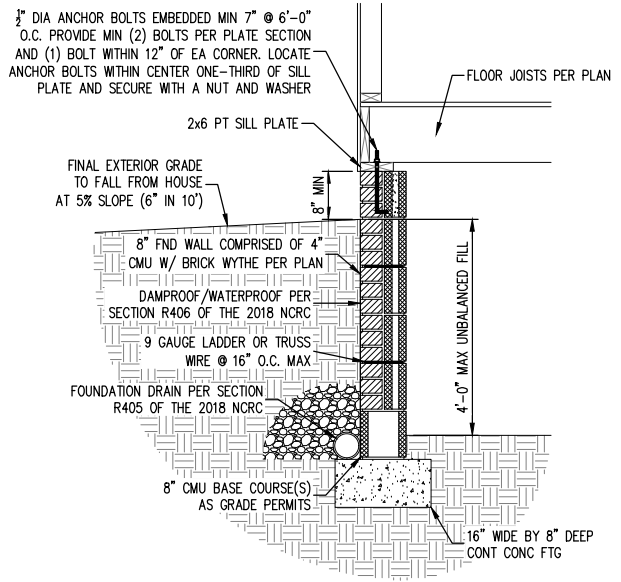
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PROJECT NO.: 23-PAD-001
DATE: MARCH 11, 2024
SCALE: AS NOTED
SHEET: STRUCTURAL DETAILS

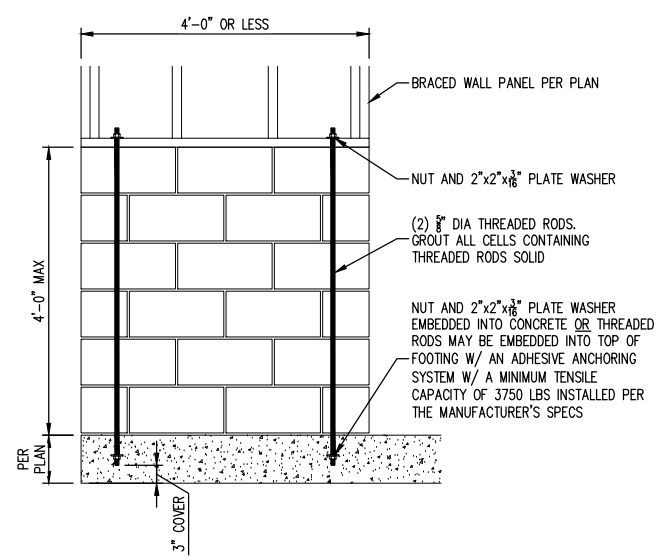
SD-1



1 TYPICAL FOUNDATION WALL
SD-1
11x17 PRINT SCALE: 3/8" = 1'-0"
24x36 PRINT SCALE: 1/4" = 1'-0"



2 FOUNDATION WALL WITH BRICK WYTHE
SD-1
11x17 PRINT SCALE: 3/8" = 1'-0"
24x36 PRINT SCALE: 1/4" = 1'-0"



3 MASONRY STEM WALL SUPPORTING BRACED WALL PANEL WITH LENGTH OF 4'-0" OR LESS
SD-1
11x17 PRINT SCALE: 3/8" = 1'-0"
24x36 PRINT SCALE: 1/4" = 1'-0"

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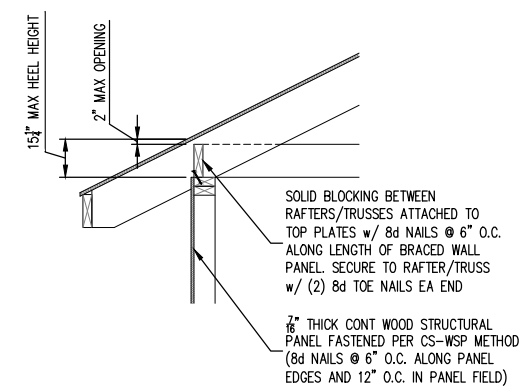
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SHEET: STRUCTURAL DETAILS

SD-2

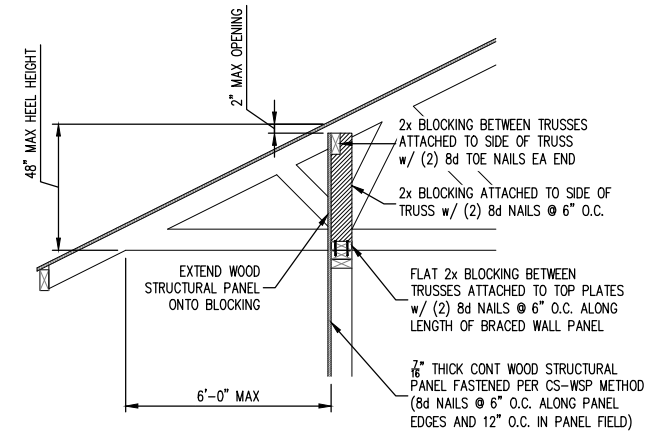


NOTES:
1) RAFTERS OR ROOF TRUSSES WITH HEEL HEIGHTS OF 9 1/4" OR LESS DO NOT REQUIRE BLOCKING.
2) PROVIDE VENTING PER SECTION R806 OF THE 2018 NCR (NOT SHOWN).

BRACED WALL PANEL CONNECTION TO PERPENDICULAR RAFTERS OR ROOF TRUSSES WITH HEEL HEIGHTS >9 1/4" TO 15 1/4"

1
SD-2

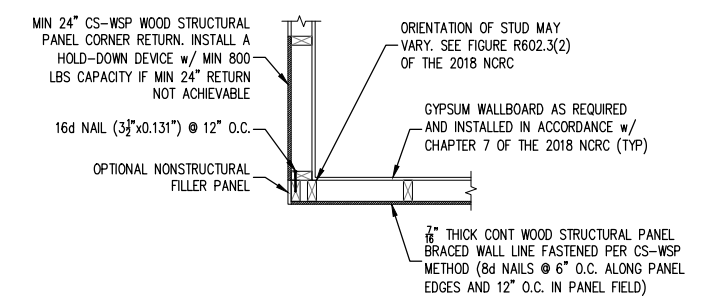
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24x36 PRINT SCALE: 1/8" = 1'-0"



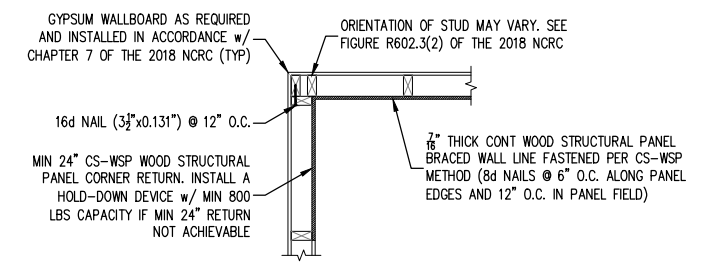
BRACED WALL PANEL CONNECTION TO PERPENDICULAR ROOF TRUSSES WITH HEEL HEIGHTS >15 1/4" TO 48"

2
SD-2

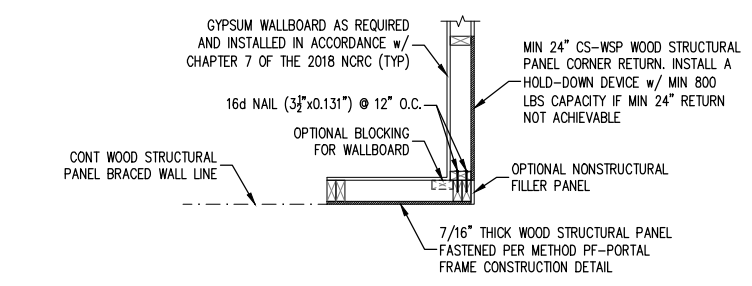
11x17 PRINT SCALE: 1/4" = 1'-0"
24x36 PRINT SCALE: 1/8" = 1'-0"



(a) OUTSIDE CORNER DETAIL



(b) INSIDE CORNER DETAIL

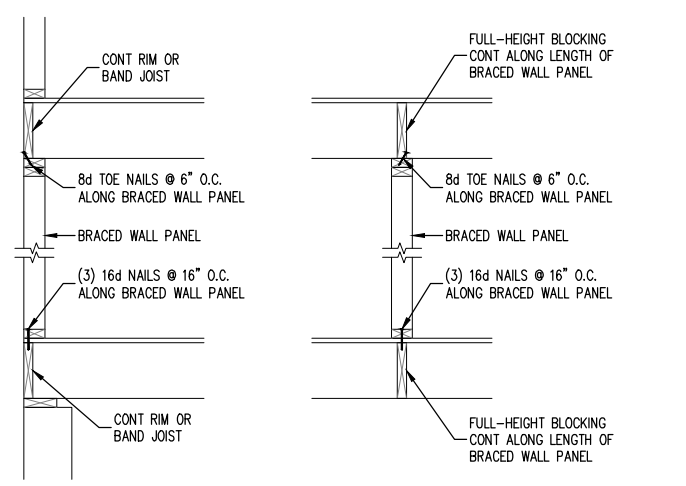


(c) GARAGE DOOR CORNER DETAIL

TYPICAL EXTERIOR CORNER FRAMING FOR EXTERIOR SHEATHING

5
SD-2

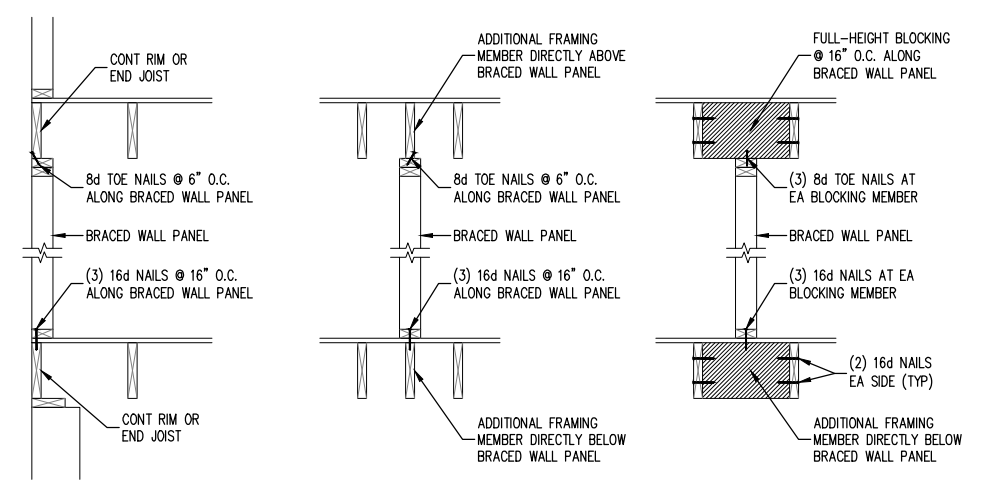
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24x36 PRINT SCALE: 1/8" = 1'-0"



BRACED WALL PANEL CONNECTION WHEN PERPENDICULAR TO FLOOR/CEILING FRAMING

3
SD-2

11x17 PRINT SCALE: 1/4" = 1'-0"
24x36 PRINT SCALE: 1/8" = 1'-0"



BRACED WALL PANEL CONNECTION WHEN PARALLEL TO FLOOR/CEILING FRAMING

4
SD-2

11x17 PRINT SCALE: 1/4" = 1'-0"
24x36 PRINT SCALE: 1/8" = 1'-0"

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