

DREES HOMES

Project info table with fields: project ngr, drawn by, issue date, REVISIONS, date



STRUCTURAL NOTES  
GRACE MODEL  
RHL

Sheet: SD-1

MULHERN+KULP logo and address: 388 Shenandoah Ave, Building 1 - Ashbur, PA 15802

GENERAL STRUCTURAL NOTES
DESIGN IS BASED ON 2018 NORTH CAROLINA RESIDENTIAL CODE.
WOOD FRAME ENGINEERING IS BASED ON NDS "NATIONAL DESIGN SPECIFICATION FOR WOOD CONSTRUCTION" - LATEST EDITION.

GENERAL FRAMING
ALL TYP. NAIL FASTENER REQUIREMENTS ARE NOTED IN STANDARD CONNECTIONS TABLE (IRC TABLE R602.3.01) OR ON PLANS. ALL NAILS SPECIFIED ARE MIN DIAMETERS AND LENGTH REQUIRED FOR CONNECTION. ALL HANGER NAILS SHALL BE INSTALLED PER MANUFACTURER'S REQUIREMENTS FOR MAX CHARTERED CAPACITY. NOTE: HANGERS USE COMMON NAIL DIAMETERS; NOT TYPICAL FRAMING GALVANIZED.

GENERAL FRAMING (CONT.)
EXT. & INT. BEARING WALLS SHALL BE 2x4 OR 2x6 (AS SHOWN ON PLAN) @ 16" O.C. SFF 5/16" GRADE LUMBER OR BETTER, UNO.
WALLS OVER 10' TALL SHALL BE PER PLAN.

GENERAL FRAMING (CONT.)
ALL INTERIOR BEARING WALLS ARE ASSUMED TO BE SHEATHED W/ 5/8" GYP WALL BOARD (ONE SIDE MIN) OR PROVIDE MID HT. BLOCKING.
ALL 2x8, 2x10, & 2x12 HEADERS, BEAMS & OTHER STRUCTURAL MEMBERS SHALL BE 5/16" LUMBER OR BETTER.

GENERAL STRUCTURAL NOTES
FLOOR FRAMING
I-JOIST/TRUSSES SHALL BE DESIGNED BY MANUF. TO MEET OR EXCEED L/400 LIVE LOAD DEFLECTION CRITERIA. (EXCLUDES STONEMARKER OR NET BED CONSTRUCTED FLOORS - CONTACT MK FOR EXCLUDED FLOOR DESIGNS)

FLOOR FRAMING (CONT.)
PER THE GUIDELINES OF THE TILE COUNCIL OF NORTH AMERICA (TOMA 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.

FLOOR FRAMING (CONT.)
METAL HANGERS SHALL BE SPECIFIED BY MANUFACTURER, UNO.
I-JOIST/TRUSSES 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 (TOMA 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.

FLOOR FRAMING (CONT.)
METAL HANGERS SHALL BE SPECIFIED BY MANUFACTURER, UNO.
ROOF SHEATHING SHALL BE 7/16" A.P.A. RATED SHEATHING 24/16 EXPOSURE 1 (OR APPROVED EQUAL). FASTEN TO FRAMING MEMBERS - W/ 2 1/4" x 0.131" NAILS @ 6" O.C. @ PANEL EDGES & @ 12" O.C. FIELD.

FLOOR FRAMING (CONT.)
FASTEN EACH ROOF TRUSS TO TOP PLATE W/ SIMPSON H25A CLIP (OR APPROVED EQUAL) @ ALL BEARING POINTS. PROVIDE (2) H25A CLIPS AT 2-PLY GIRDER TRUSSES, (3) H25A CLIPS AT 3-PLY GIRDER TRUSSES & ROOF BEAMS - AT ALL BEARING POINTS.

LATERAL/WALL BRACING & WALL SHEATHING SPECIFICATIONS
THIS MODEL HAS BEEN DESIGNED TO RESIST LATERAL FORCES RESULTING FROM:
120 MPH WIND IN 2018 NC5BC (120 MPH WIND SPEED IN ASCE 7-10 WIND MAP, PER IRC R501.2.1.1) EXP. B & SEISMIC CAT. A/B.

EXT. WALL SHEATHING SPECIFICATION
7/16" OSB OR 15/32" PLYWOOD:
FASTEN SHEATHING W/ 2 3/8" X 0.131" NAILS @ 6" O.C. AT EDGES & @ 12" O.C. IN THE PANEL FIELD. (TYP. UNO)

3" O.C. EDGE NAILING
AT DESIGNATED AREAS - FASTEN PANEL EDGES OF WOOD STRUCTURAL WALL SHEATHING TO FRAMING W/ 2 3/8" x 0.131" NAILS @ 3" O.C. AND 12" O.C. IN THE PANEL FIELD. NO STAPLES ALTERNATIVE AVAILABLE AT THIS SPEC. ALL SHEATHING PANELS SHALL BE ORIENTED VERTICALLY (LONG DIRECTION PARALLEL TO STUD) 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.
DESIGN ASSUMES 16" O.C. MAX. STUD SPACING, UNO.
ALL STRUCTURAL PANELS ARE TO BE DIRECTLY APPLIED TO STUD FRAMING.

INDICATES EXTENT OF INT. OSB SHEARWALL, BLOCKED PANEL EDGES, AND/OR 3" O.C. EDGE NAILING
INDICATES HOLDOWN
INDICATES POST ABOVE (P.A.) PROVIDE SOLID BLOCKING UNDER POST OR JAMB ABOVE.

GENERAL STRUCTURAL NOTES
FOUNDATION
DESIGN IS BASED ON 2018 OHIO RESIDENTIAL CODE.
FOOTING DESIGN - 1500 PSF NET ALLOWABLE SOIL BEARING PRESSURE IS ASSUMED. BUILDER/CONTRACTOR MUST VERIFY.

FOUNDATION (CONT.)
ALL LUMBER EXPOSED TO WEATHER OR IN CONTACT W/ PERIMETER FLOORING 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 VERIFY.

FOUNDATION (CONT.)
CONCRETE DESIGN BASED ON ACI 318. CONCRETE SHALL ATTAIN THE FOLLOWING MIN. COMPRESSIVE STRENGTHS IN 28 DAYS, UNO:
f'c = 4000 psi; ..... FOUNDATION WALLS
3000 psi; ..... FOOTINGS & INTERIOR SLABS ON GRADE
5000 psi; ..... GARAGE & EXTERIOR SLABS ON GRADE
fy = 60,000 psi

FOUNDATION (CONT.)
BASEMENT FOUNDATION WALL DESIGN BASED ON:
@ OR @' HEIGHT (AS NOTED ON PLANS)
- TALLER WALLS MUST BE ENGINEERED.
NOMINAL WIDTH (8" FOR 8' WALL, 10" FOR 10' WALL).

FOUNDATION (CONT.)
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/2x2x6 JACK STUDS, UNO.
LARGER OPENINGS SHALL BE PER PLAN.

VENEER LINTEL SCHEDULE table with columns: SPAN (MAX), HEIGHT OF VENEER ABOVE LINTEL, STEEL ANGLE SIZE

ALL LINTELS: 2"x3" VENEER @ 40 PSI MAXIMUM HEIGHT.
@ SHALL HAVE 4" MIN. BRACING.
@ SHALL HAVE 4" MIN. BRACING.
@ SHALL HAVE 4" MIN. BRACING.
@ SHALL BE FASTENED BACK TO HEADERS.
@ SHALL BE FASTENED BACK TO WOOD BEAMER IN WALL @ 48" O.C. W/ 3" DIA. # 3/8" LONG LAG SCREWS IN 2" LONG VERTICALLY SLOTTED HOLES.
@ SHALL BE FASTENED TO STUDS WITH 16" DIA. ANCHOR BOLTS @ 6'-0" O.C. T. MIN. EMBEDMENT.
ALL LINTELS SHALL BE LONG 165 VERTICAL.
HEADS SUPPORTING VENEER @ MUST BE THE EXTERIOR TOE OF THE HORIZONTAL LAG.
@ TO ALLOW FOR VERTICAL JOINT TRIMMING OVER THE BEARING LENGTH ONLY. THIS IS TO BE DONE PRIOR TO VENEER INSTALLATION.
@ FOR GREEN VENEER USE L46241.
@ FOR GREEN VENEER ONLY. SEE PLAN FOR VENEER SUPPORT T. VENEER @ 3/8" THICK.
MK SING. - MAY 200

LEGEND
INTERIOR BEARING WALL
BEARING WALL ABOVE
BEAM / HEADER
EXTENT OF OVERFRAMING
METAL HANGER
INDICATES EXTENT OF INT. OSB SHEARWALL, BLOCKED PANEL EDGES, AND/OR 3" O.C. EDGE NAILING
INDICATES HOLDOWN
INDICATES POST ABOVE (P.A.) PROVIDE SOLID BLOCKING UNDER POST OR JAMB ABOVE.

ADDITIONAL NOTES FOR TRUSS & I-JOIST MANUFACTURER
ROOF TRUSS FLOOR TRUSS AND ENGINEERED JOISTS SHALL BE DESIGNED TO MEET THE 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 MK FOR REVIEW PRIOR TO FABRICATION, DELIVERY, OR INSTALLATION.

ADDITIONAL NOTES FOR TRUSS & I-JOIST MANUFACTURER (CONT.)
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
FLOOR TRUSSES, ATTIC TRUSSES, & I-JOISTS: 1/8" DEAD LOAD
ABSOLUTE DEAD LOAD DEFLECTION OF FLOOR TRUSSES/ATTIC TRUSSES WHEN ADJACENT TO FLOOR FRAMING BY OTHERS SHALL BE LIMITED TO 5/16". (NOT DIFFERENTIAL DEFLECTION)

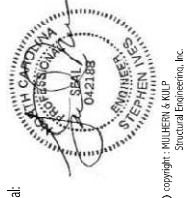
CONNECTION SPECIFICATIONS (TYP. UNO.)
NOTE: 10d NAIL = 3" x 0.131" GAN NAIL
JOIST TO SOLE PLATE
SOLE PLATE TO JOIST/BLK'S
SOLE TO SOLE PLATE
TOP OR SOLE PLATE TO STUD
RIP TO TOP PLATE
BLK'S: BTWN. JOISTS TO TOP PL.
RAFTER/TRUSS TO TOP PLATE
GAB. END TRUSS TO DBL. TOP PL.
R.T. W/ HEEL HT. 1/4" TO 12"
R.T. W/ HEEL HT. 12" TO 16"
R.T. W/ HEEL HT. UP TO 24"
R.T. W/ HEEL HT. 24" TO 48"

CONNECTION SPECIFICATIONS (CONT.)
DOUBLE STUD
DOUBLE TOP PLATE
DOUBLE TOP PLATE LAP SPLICE
TOP PLATE LAP @ CORNERS & INTERSECTING WALLS
WALL TO FOUNDATION
GARAGE SLAB
4" CONC. SLAB W/ 6x6-W/4xM/4 WVF ON 6 MIL VAPOR BARRIER ON 4" MIN. GRANULAR FILL ON 45% COMPACTED FILL/VIRGIN SOIL

CONNECTION SPECIFICATIONS (CONT.)
PORCH SLAB
4" CONC. SLAB W/ 6x6-W/4xM/4 WVF ON 45% COMPACTED FILL/VIRGIN SOIL
BASEMENT SLAB
4" CONC. SLAB ON 6 MIL VAPOR BARRIER ON 4" MIN. GRANULAR FILL ON 45% COMPACTED FILL/VIRGIN SOIL
SLAB ON GRADE
4" CONC. SLAB W/ 6x6-W/4xM/4 WVF ON 6 MIL VAPOR BARRIER ON 4" MIN. GRANULAR FILL ON 45% COMPACTED FILL/VIRGIN SOIL

CONNECTION SPECIFICATIONS (CONT.)
GARAGE SLAB
4" CONC. SLAB W/ 6x6-W/4xM/4 WVF ON 6 MIL VAPOR BARRIER ON 4" MIN. GRANULAR FILL ON 45% COMPACTED FILL/VIRGIN SOIL
PORCH SLAB
4" CONC. SLAB W/ 6x6-W/4xM/4 WVF ON 45% COMPACTED FILL/VIRGIN SOIL
BASEMENT SLAB
4" CONC. SLAB ON 6 MIL VAPOR BARRIER ON 4" MIN. GRANULAR FILL ON 45% COMPACTED FILL/VIRGIN SOIL
SLAB ON GRADE
4" CONC. SLAB W/ 6x6-W/4xM/4 WVF ON 6 MIL VAPOR BARRIER ON 4" MIN. GRANULAR FILL ON 45% COMPACTED FILL/VIRGIN SOIL

CONNECTION SPECIFICATIONS (CONT.)
GARAGE SLAB
4" CONC. SLAB W/ 6x6-W/4xM/4 WVF ON 6 MIL VAPOR BARRIER ON 4" MIN. GRANULAR FILL ON 45% COMPACTED FILL/VIRGIN SOIL
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BASEMENT SLAB
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SLAB ON GRADE
4" CONC. SLAB W/ 6x6-W/4xM/4 WVF ON 6 MIL VAPOR BARRIER ON 4" MIN. GRANULAR FILL ON 45% COMPACTED FILL/VIRGIN SOIL



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Mulhern+Kulp project number:

project mgr: BSM  
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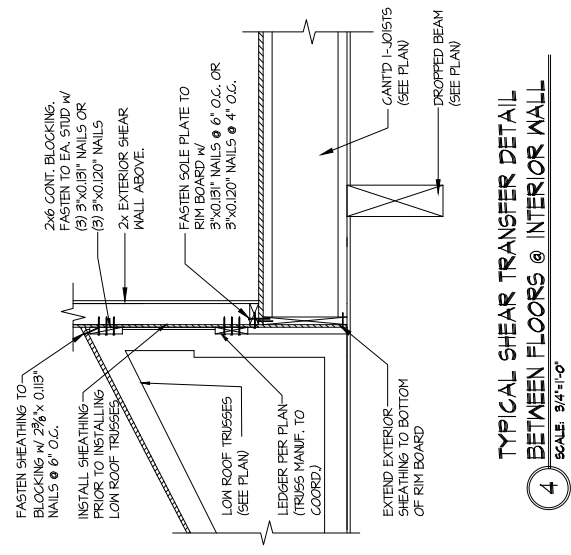
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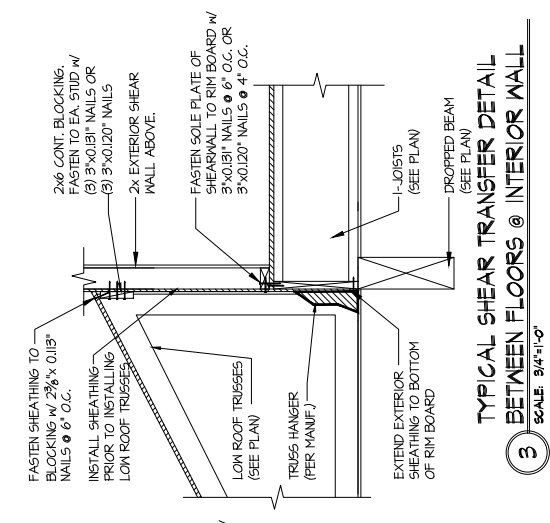
LATERAL DETAILS  
GRACE MODEL

RHL

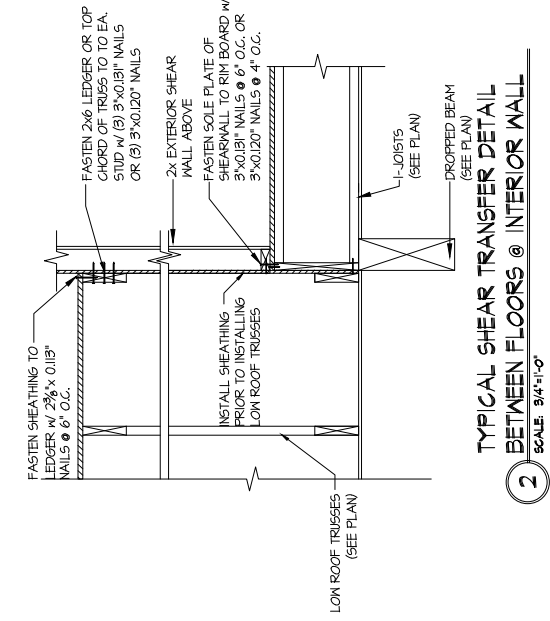
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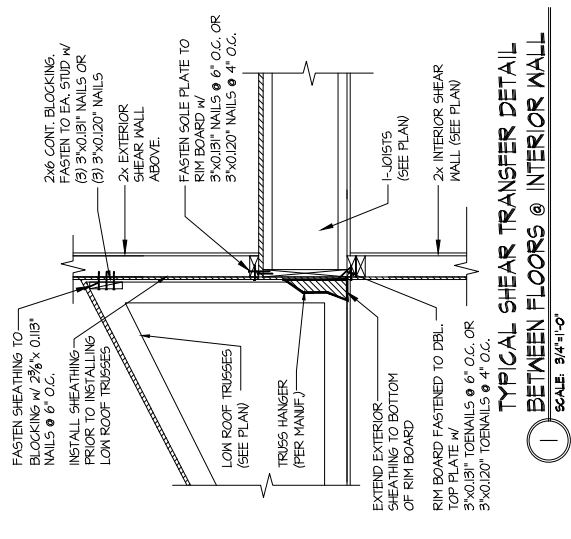
4 TYPICAL SHEAR TRANSFER DETAIL  
BETWEEN FLOORS @ INTERIOR WALL  
SCALE: 3/4"=1'-0"



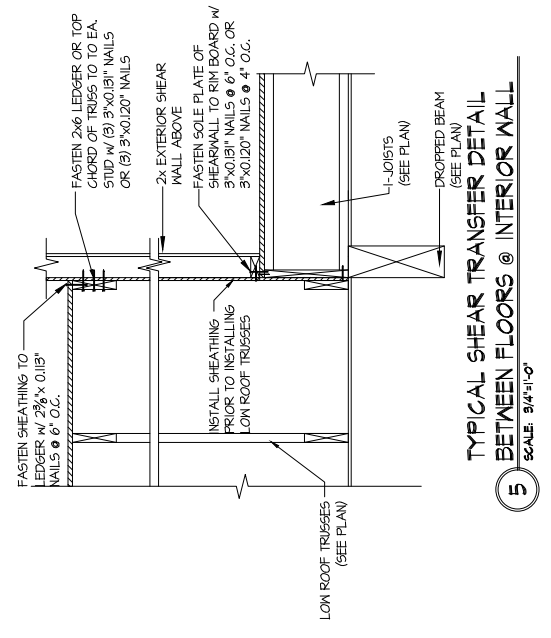
3 TYPICAL SHEAR TRANSFER DETAIL  
BETWEEN FLOORS @ INTERIOR WALL  
SCALE: 3/4"=1'-0"



2 TYPICAL SHEAR TRANSFER DETAIL  
BETWEEN FLOORS @ INTERIOR WALL  
SCALE: 3/4"=1'-0"



1 TYPICAL SHEAR TRANSFER DETAIL  
BETWEEN FLOORS @ INTERIOR WALL  
SCALE: 3/4"=1'-0"



5 TYPICAL SHEAR TRANSFER DETAIL  
BETWEEN FLOORS @ INTERIOR WALL  
SCALE: 3/4"=1'-0"